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CONTENTS AND DIGEST

Protein Diets and Undernutrition in Treatment of Diabetes. Frederick M. Allen, M.D., New York.....571

Present practice in treatment of diabetes. Factors for guidance in planning diets after fasting. Illustrative case reports.

The Feeding of Normal Infants During the Second Year. John Lovett Morse, M.D., Boston 577

Need of cereals after first year. Broth and beef juice. Zwieback, bread and rice. Laxatives. The use of eggs. Milk as the basis of diet. Meat and green vegetables. The liberal diet. What Nature teaches us. Is the simple diet sufficiently nutritious? The vitamins. Mineral salts. The need of bulk. The simple diet vindicated.

The Diagnosis of Heart Disease in Young People. Paul D. White, M.D., Boston 580

Need of more accurate diagnosis of heart conditions in young people. Differential diagnosis between heart disease and effort syndrome in young people. Report of case.

Ruptured Ectopic Pregnancy in Uterine Cornu After Salpingectomy for Previous Tubal Pregnancy. John Douglas, M.D., New York.....582

Report of case. Frequency of occurrence of the condition. Conjecture as to how impregnation occurred and how the fecundated ovum could become attached to the opposite cornu.

Acute Respiratory Disease Carriers. Lesley H. Spooner, M.D., Boston..582

Respiratory infection among young adults. "Carriers." Pneumococcus. Bacillus diphtheriae. Meningococcus. Streptococcus.

Electrical Stimulation of Peripheral Nerves Exposed at Operation: Surgical Value. Walter M. Kraus, M.D., New York, and Samuel D. Ingham, M.D., Philadelphia 586

Technic. Value of the method to the surgeon. Electric phenomena. Results of stimulation in seventy-three cases.

Restoration of Loss of Bone, Including an Analysis of the First Hundred Cases of Fracture Treated by Bone Graft at U. S. Army General Hospital No. 3, Colonia, N. J., Fred H. Albee, M.D., assisted by Elmer P. Weigel, M.D., New York.....589

Underlying biologic principles. Influence of mechanical stress on bone growth. Technic. Analysis of cases. Immobilization in extremity work. Repair of the mandible. Compression fractures of the vertebrae. Preoperative treatment of infected cases. Source of graft material. Avoidance of trauma. Final results in forty-eight cases.

Diagnosis and Surgical Treatment of Intrathoracic Goiter: Palliative Tracheotomy; Tracheostenosis. Gustav Schwyzer, M.D., Minneapolis.....597

Anatomy. Diagnosis. Physical examination. Pathologic structure. Heart symptoms. Indications for operation. Surgery. Tracheostenosis.

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Improvements in Technic for the Obstetric Nursery. Herbert Thoms, M.D., New Haven, Conn.....602

A Chair for Spinal Puncture. Norman E. Williamson, M.D., Stockton, Calif. 602

(Continued on next page)

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Bulletin

IN SPANISH

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FEBRUARY CONTENTS

Surgical Clinics of Chicago

Clinic of Dr. A. D. Bevan, *Presbyterian* BRANCHIAL CYST—INTESTINAL OBSTRUCTION—APPENDICAL ABSCESS SIMULATING CARCINOMA OF THE ASCENDING COLON—IMPERFORATE ANUS—GAUZE SPONGE LEFT IN GALLBLADDER.

Clinic of Dr. E. Wyllys Andrews, *Mercy* CHRONIC CHOLECYSTITIS AND CHOLELITHIASIS WITH POSITIVE *x*-RAY DIAGNOSIS—MYELOMA.

Clinic of Dr. D. N. Eisendrath, *Michael Reese* INGUINAL ROUTE IN FEMORAL HERNIOTOMY.

Clinic of Dr. Kellogg Speed, *Cook County* PROLAPSUS RECTI.

Clinic of Dr. Gatewood, *Presbyterian* STRICTURE OF ESOPHAGUS—DISLOCATION OF HIP; FRACTURE OF ACETABULUM.

Clinic of Dr. Philip H. Kreuscher, *Mercy* CARCINOMA OF ESOPHAGUS: GASTROSTOMY.

Clinic of Dr. Alfred A. Strauss, *Michael Reese* CONGENITAL PYLORIC STENOSIS.

Clinic of Dr. Carl Beck, *North Chicago* ECTROPION OF LOWER LID—PLASTIC ON HEEL—UNUNITED FRACTURE.

Clinic of Dr. Carl B. Davis, *Presbyterian* LYMPHOSARCOMA OF SPINE—EXTRADURAL FIBROMA OF SPINE—ULNAR PARALYSIS.

Clinic of Dr. Lewis L. McArthur, *St. Luke's* SARCOMA OF POSTERIOR TIBIAL NERVE.

Clinic of Dr. George D. J. Griffin, *Mercy* EMPYEMA.

Clinic of Dr. Benjamin F. Davis, *Presbyterian* TRAUMATIC SEPARATION OF UPPER FEMORAL EPIPHYSIS.

Clinic of Dr. Golder L. McWhorter, *Presbyterian* CIRCUMCISION: LOCAL ANESTHESIA — ARTHROTOMY OF KNEE-JOINT UNDER LOCAL.

Clinic of Dr. C. M. McKenna, *Univ. of Illinois* CYSTS OF EPIDIDYMIS AND VAS—HYDROCELE AND AMPUTATION OF SCROTUM—SARCOMA OF BLADDER.

Clinic of Dr. Carey Culbertson, *Presbyterian* LIGAMENT SHORTENING IN RETROFLEXION OF UTERUS.

Clinic of Dr. Edward Lyman Cornell, *Provident* KRÖNIG CESAREAN SECTION.

Contribution by Dr. Roy L. Moodie, *Univ. of Ill.* STUDIES IN PALEOPATHOLOGY.

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See Page 3

CONTENTS AND DIGEST—Concluded

Acute Myeloid Leukemia Simulating Meningitis. E. E. H. Munro, M.D., St. Louis.....603

THERAPEUTICS

Milk as a Vehicle for Castor Oil...603

EDITORIALS

Some Factors in Bone Repair.....604
Function of macrophages.

Regional Health Surveys.....604
Information that should be obtained during the hospital inspection.

Compensatory Responses to the Oxygen Want at High Altitudes.....605
Individual variations in adaptive mechanisms among aviators.

Three Early Epidemics of Influenza..606
Accounts by observers of the disease in 1647, 1789 and 1807.

CURRENT COMMENT

Another Water Supply "Accident"..606
The typhoid outbreak at Lansing, Mich.

The 1920 Influenza.....607
Mildness of the outbreak.

Pharmacy by Act of Congress.....607
An instance of the marvels performed by legislation.

Tissue Conservation Through the Action of Quinin.....608
Decrease of nitrogenous disintegration induced by the alkaloid.

ASSOCIATION NEWS 608

MEDICAL NEWS

CALIFORNIA: State Society Meeting — Physician Arrested — Personal — Illegal Practitioner Charged with Manslaughter — Bureau of Child Hygiene — Diploma Lost — Sun Cult Leader Arrested — League for Conservation of Public Health 608

COLORADO: Social Service at University — Influenza — Tuberculous Persons Should Not Leave Home 609

ILLINOIS: Sanatorium Changes Hands — More Money for Speedway Hospital — Personal — Chiropractor Arrested — Forged Prescriptions for Whisky. Chicago: Personal —Midwife Fined — Municipal Sanatorium— Institute of Medicine Meeting — Reception and Dinner to Admiral Braisted — Fraternity Dinner — Druggist Arrested for Practicing Medicine 609

IOWA: New Officers 609

KANSAS: Personal — New Officers — Venereal Disease Activities 609

KENTUCKY: Libraries Consolidated — Eye and Ear Men Elect — Contract Let for Government Hospital — Personal — Nutrition Survey 610

LOUISIANA: Ground Broken for Hospital — Personal—Laboratory Item—New Officers.610

MASSACHUSETTS: Personal 610

MICHIGAN: Personal — Industrial Earnings — Venereal Disease Clinics — Cancer Publicity 610

MINNESOTA: Personal — Decline in Mortality 610

MISSISSIPPI: Influenza — Home for Feebleminded — Mental Deficiency Survey.....610

MISSOURI: Graduate Instruction in Pediatrics —Semicentennial Ceremonies—Personal..611

MONTANA: Western Montana Physicians Elect Officers — Personal—Public Health Hospital for Mental Diseases 611

NEBRASKA: 611

NEW JERSEY 611

NEW YORK 611

OHIO 611

PENNSYLVANIA 612

CANADA 612

GENERAL 612

FOREIGN 613

LATIN AMERICA 614

GOVERNMENT SERVICES 614

FOREIGN CORRESPONDENCE 614

London.
Paris.

MARRIAGES 616

DEATHS 617

PROPAGANDA FOR REFORM 618

Antiplasma.

CORRESPONDENCE 618

Status of Arsphenamin Patents.
Americanization of the Medical Profession.
"A Modified Technic in Operation for Oblique Inguinal Hernia."
"Commercial Domination of Biologic Therapeutics."
Respiratory Sounds Heard on the Head.

QUERIES AND MINOR NOTES 619

Physicians and the Prohibition Law.
Vaccination Without Scar.
"Procain"; Books on Gonorrhea, Syphilis, Malaria.
Tscherning.

MEDICAL EDUCATION, REGISTRATION AND HOSPITAL SERVICE

Coming Examinations — Washington July Examination — District of Columbia October Examination 620

MEDICOLEGAL

Sufficiency of Evidence of Typhoid Fever from Drinking Contaminated Water — Unconstitutional Exemption Law Relative to Physicians' Bill 621

SOCIETY PROCEEDINGS 622

Coming Meetings.
The Chicago Society of Internal Medicine.

MISCELLANY

Process of Canning Ripe Olives 625

CURRENT MEDICAL LITERATURE

American Medical Journals

Nature of Osteoclasts—Spleen and Phagocytic Activity 625

Effect of Strain on Heart Rate and Blood Pressure — Cause of Gastric Secretion—Hydrogen-Ion Concentration of Urine—Treatment of Back Injuries 626

Present Needs of Tuberculosis Campaign—Diet Reduction with Retention of Protein to Relieve Glycosuria in Diabetes Mellitus—Treatment of Chronic Ulcers—Pyloric Obstruction and Gastric Tetany—Acute Cholecystitis Complicating Typhoid—Roentgen-Ray Studies of Seminal Vesicles and Vasa Deferentia—Self-Eventration of Large Abdominal Hygroma.. 627

Upturned Edge of Liver in Gallbladder Infections—Fate of Bacteria in Upper Air Passages—Nonparasitic Hematochyluria—Myoma of Uterus with Degenerative Changes—Poisoning by Nicotin—Ectopic Adenomyoma of Uterine Type—Early Diagnosis of Typhoid and Paratyphoid Infections—Congenital Obstruction of Posterior Urethra 628

Bladder in Secondary Syphilis—Effect of Feeding Prostate—Empathic Index and Personality — Administrations of Arsphenamin by Retention Enema — Malignant Sarcomas—Surgical Problems of Pancreas.....629

Wassermann Contradictions — Dental Syphilitic Chancre — New Method of Inserting Bone Graft for Correction of Kyphosis..630

Foreign Medical Journals

Early Diagnosis of Pulmonary Tuberculosis—Treatment of Malaria—Administration of Arsenic Compounds in Syphilis.....630

Yield of Bacterial Substance for Area Growth —Dried Bacterial Antigen — Antiberiberi Vitamin Content of Peanut Meal Biscuits—Charcot-Leyden Crystals in Feces in Amebic Colitis—Culture Medium Suitable for Growth of Organisms Used in Vaccines—Wassermann Reaction of Aqueous Humor—Pancreatic and Intestinal Infantilism—Lupus of Upper Air Passages 631

Appendicitis in Solomon Islands—Isolation of Organism Resembling Paratyphoid Group—Septicemic Anthrax Successfully Treated by Intravenous Serum Therapy—Traumatic Rupture of Liver—Syphilis in South Africa—Diagnosis of Slow Pulse by Inspection of Veins—Phonophlebogram—Digitalis in Pulmonary Tuberculosis 632

Inherited Syphilis and Dystrophies—Nephritis in Children—Treatment of Acute Appendicitis—Medical Treatment of Acute Amebic Disease of the Liver—False Tuberculosis—Rash with Edema and Desquamation After Arsphenamin — Blood Findings in Typhoid and Paratyphoid After Vaccination.....633

Gerodermia in Children — Roentgenography After Injection of Air—Spirochetal Jaundice —Typhoid Gangrene — Mental Dyspepsia—Abbott's Method of Treating Scoliosis—Treatment of Deafmutrsm—Tuberculosis in 1920 634

Menstrual Equivalents in the Tuberculous—The Miliary Form of Pulmonary Tuberculosis—Bacteriologic and Radiologic Tests in Pulmonary Tuberculosis—Sterilization by the Sun of Tubercle Bacilli in the Street—Volvulus of Sigmoid Flexure—Mishaps from Domestic Electric Currents—Protecting Coating for the Stomach—Oxygen as Aid in Roentgenography —Cancer of Uterine Cervix.....635

Research on the Pulse—Goiter Operations—Multiformity of Symptoms in Response to Single Stimulus—Hemostatic Band in Surgery—Slow Pulse—Cure of Dermatitis by Intercurrent Acute Infectious Disease—Code of Ethics — Angioneurotic Edema — Erythromelalgia 636

Chronic Arsenic Poisoning from Drinking Water—Auricular Flutter — Carbohydrates and the Sugar Content of the Blood—Gonorrheal Arthritis—Preservation of Erythrocytes After Death—Loss of Vision from Methyl Alcohol Poisoning—Microsporia and Its Causative Agent—Acute Puerperal Inversion of the Uterus 637

Atypical Erythema Nodosum—Treatment of Old Ulcerating Wounds—Effect of Epinephrin on Blood Pressure — Otogenous Pyemia and Sepsis 638

Nerve Shifting and Joint Adjustment in Relation to Primary Nerve Suturing—Dilatation of the Heart with Thyroid Insufficiency—An Artificial Esophagus—Nearthrosis 639

Thyroidectomy—Prophylaxis of Thrombosis—Dangers of Blood Transfusion in Obstetrics —To Shut Off the Blood from the Lower Half of the Body—Vaccination Against Tuberculosis—Empyema — Lethargic Encephalitis 640

TONICS AND SEDATIVES—BOOKS RECEIVED.....Adv. Page 20

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PROTEIN DIETS AND UNDERNUTRITION IN TREATMENT OF DIABETES

FREDERICK M. ALLEN, M.D.

NEW YORK

The modern treatment of diabetes is generally recognized as an attempt to relieve overstrain of a weakened assimilative function by limitation of the diet. In the more severe cases, such relief is most quickly and thoroughly obtained by fasting, either immediately or after a preparatory fat-free diet as proposed by Joslin. This part of the program is usually the simplest for successful accomplishment, and the chief difficulties and chief causes of varying results in the hands of different practitioners are found in the arrangement of the subsequent diet. Excess in total calories has been the commonest mistake and responsible for much unfavorable progress and mortality, as pointed out in the comparison of cases differently treated by different persons in the Rockefeller Institute series.[1] But the proportions of various foods are also highly important for maintaining control of the diabetes with the least possible impairment of health and strength. Some practitioners desiring to avoid the former evils of high protein-fat diets have gone too far toward the opposite extreme with diets excessive in vegetables and deficient in protein and calories. Mosenthal[2] has oulined diets predominant in protein and emphasized protein as the most important food for maintaining body nitrogen. Equilibrium is known to be possible at widely different levels of nitrogen, total calories and body weight. If active symptoms are to be prevented, the therapeutic problem in each individual patient is to determine the diet which gives the most beneficial nutritive result without overtaxing the assimilative power, the latter being taken as the standard rather than any arbitrary nutritive level.

At the Rockefeller Institute hospital, the diet after fasting generally began with a carbohydrate tolerance test, in the form of a regular addition of 10 gm. of carbohydrate in vegetables daily until glycosuria resulted. The purpose was to establish a standard of tolerance for comparison of different cases and of the same case at different times, and to continue undernutrition while diminishing or abolishing acidosis. Such a program is really feasible only in an experimental institution, and objections to it may be thus formulated: First, the time consumed is often so great as to be an obstacle to general practical application. Second, during this period there is relative protein starvation combined with a special strain on the carbohydrate assimilation, both of which are better avoided if possible. Third, it is now known both from the clinical experience and from animal experiments[3] that relief of the injurious overstrain of the assimilation requires control not only of glycosuria but also of hyperglycemia. A test based only on glycosuria therefore sets a false standard, and is subject to considerable errors through the wide variations of renal permeability.

Five facts may serve for guidance in planning diets after fasting: (*a*) The total calories at first should be very low and increased gradually. (*b*) Protein is the most important food. (*c*) The tolerance for protein is highest when other foods are excluded or closely restricted. (*d*) The caloric requirement falls with the body weight and may reach a very low minimum.[4] (*e*) The tolerance rises as the weight falls; and with exceedingly few exceptions the two curves intersect at some level on which life can be supported.

In a few cases with severe acidosis, a short carbohydrate period may be advisable. But for most cases in private practice it has seemed advantageous to use almost pure protein diets until the blood sugar falls to normal, and then gradually to build up a maintenance diet to such a level as is possible without return of hyperglycemia or marked acidosis. The severity of the diabetes and the quantity of protein that can be tolerated may best be judged by a protein tolerance test as described by Jacobsen,[5] which is especially useful in some cases for deciding whether the patient is breaking diet. Or, without any formal test, a satisfactory routine is to begin with a small protein allowance and determine the blood sugar occasionally as a guide for the increase. Under any conditions, the ultimate criterion of the severity of diabetes is the level of diet and body weight which can be endured without return of symptoms. The application of the method in question may be illustrated by the following summaries of case records, selected chiefly with reference to some of the practical difficulties.

MILD DIABETES WITH OBESITY AFTER MIDDLE LIFE

CASE 1 (36).—*History.*—A married woman, aged 55, admitted to the hospital, July 30, 1919, with negative family history except for obesity in the father and one brother, had worked hard and was thin up to age of 26, when she moved to America. Here she married and gradually became pros-

1. Total Dietary Restriction in the Treatment of Diabetes, Monograph 11, Rockefeller Institute for Medical Research, 1919.

2. Mosenthal, H. O.; Clausen, S. W., and Hiller, Alma: The Effect of Diet on Blood Sugar in Diabetes Mellitus, Arch. Int. Med. **21**: 93 (Jan.) 1918. Mosenthal, H. O., and Clausen, S. W.: The Maintenance Diet in Diabetes Mellitus as Determined by the Nitrogen Equilibrium, ibid. **21**: 269 (Jan.) 1918. Mosenthal, H. O., and Harrop, G. A., Jr.: The Comparative Food Value of Protein, Fat and Alcohol in Diabetes Mellitus as Measured by the Nitrogen Equilibrium, ibid. **22**: 750 (Dec.) 1918.

3. Allen, F. M.: J. Exper. Med., to be published.

4. Monograph 11, Rockefeller Institute for Medical Research, p. 130.

5. Jacobsen, A. T. B.: Am. J. M. Sc., to be published.

perous and obese. Five children were born to her; there was fever for two months following the birth of the first. One miscarriage occurred at the age of 40; she refused curettage and suffered from profuse menstrual hemorrhages thereafter. A year or two later she began to suffer chronic pains in the joints, especially the knees, which still continue. Five years before admission she was in bed with fever for three weeks; the physicians diagnosed infected uterine fibroids and were on the point of operating when the condition improved spontaneously. Hemorrhages ceased at menopause at about the same time and a small umbilical hernia was discovered which, though retained by a belt, has grown larger and creates much inconvenience. She had complained of "stomach trouble" for the last twenty-five or thirty years, with pain when hungry, generally relieved by food, but sometimes with cramps after eating. There had been continuous slight pain and tenderness in the liver region, and physicians had diagnosed an enlarged liver. She had been a large eater all this time, but denied excesses in sweets. Five years before admission she reached her highest weight of 274 pounds. Pruritus, polydipsia and polyuria then came on, and diabetes was diagnosed about one year later. Lax diet stopped the glycosuria temporarily, but it returned. Three years before, severe neuritis of the right leg kept her in bed for seventeen weeks; it was over a year before she could walk straight, and slight pain still remained. During this time her physicians used only local treatments, without diet restriction. Her weight had been diminishing, and she had become highly neurasthenic. Her complaints on admission were weakness, loss of 16 pounds in weight in the last two weeks, polyuria, pruritus, indigestion with abdominal pain, pelvic pain from fibroids, joint pains, neuritis in the right leg, inconvenience from hernia, and exaggerated nervousness with frequent crying spells.

Physical Examination.—The patient's height was 5 feet, 7 inches, and the weight, 212 pounds. The knee-jerks were absent and the Wassermann test was negative. Other findings were as indicated in the foregoing history.

Treatment.—In addition to heavy sugar, the urine showed traces of albumin but no acetone. After twenty-four hours of fasting, the glycosuria diminished to a faint trace, acetone did not appear, but the plasma sugar was still 0.4 per cent. A diet was begun of 10 gm. of carbohydrate, 50 gm. of protein and 400 calories; glycosuria ceased within another twenty-four hours. August 4, the plasma sugar before breakfast was 0.214 per cent., and the diet was increased to 70 gm. of protein, 20 gm. of carbohydrate and 650 calories. August 9, the carbohydrate was increased to 40 gm., and August 13 the patient was discharged on a diet of 70 gm. of protein, 50 gm. of carbohydrate and 900 calories; the plasma sugar was 0.144 per cent. and the body weight 103 pounds. Occasional slight nitroprussid reactions were present in the urine. Most of the pains and other subjective symptoms had disappeared; there was no complaint of indigestion on the low diet; the strength had improved with the aid of outdoor walking; with the better general condition the distress from the enlarged liver, hernia and fibroids was much less, and the patient felt well and cheerful.

Subsequent History.—August 20, the patient reported, with urine negative for sugar and acetone, but plasma sugar 0.254 per cent.; she was still feeling well. She admitted some laxness in diet, and was admonished to be strict. At her second visit, August 29, the plasma sugar was 0.183 per cent.; September 15, it was 0.152 per cent. The weight fell below 200 pounds, though the diet was gradually increased to 1,500 calories, and the patient had taken minor liberties in addition. The plasma sugar, November 24, was 0.190 per cent., and the patient was urged to be more strict.

The case illustrates the variety of ailments that may result from overeating and obesity. Both for these and for the mild diabetes there is naturally indicated an undernutrition diet containing protein to protect body nitrogen and carbohydrate to prevent any serious acidosis, but deficient in fat so as to compel burning of body fat. The high renal threshold for sugar shows the unreliability of urine tests as a guide for treatment. The best policy calls for a normal blood sugar; but in view of the age of the patient and the inherent mildness of the diabetes, no undue alarm need be created by moderate hyperglycemia, especially as the analyses after discharge were all taken during digestion. Operation has been suggested for the hernia and possible gallstones if the patient will first reduce her weight sufficiently, but she will probably remain satified with her present condition.

MODERATELY SEVERE DIABETES AFTER MIDDLE LIFE

CASE 2 (42).—*History.*—A man, aged 58, married, manufacturer, admitted, Aug. 2, 1919, with negative family history except for slight obesity in the father and mother, had had scarlet fever at 12, which was his only illness. There was no history of alcoholism or of excesses in food or sweets. Slightly obese from boyhood, he reached his highest weight of 210 pounds four years before. Then he had an acute onset of weakness, and a physician immediately diagnosed diabetes. The diets prescribed were unable to stop the glycosuria and loss of weight; pains in the legs became very troublesome, and in April, 1919, he was referred to me for treatment. He was given general instructions for a diet adequate in protein and low in both carbohydrate and fat, on which glycosuria was absent but hyperglycemia persistent. Instead of improving, he complained of increasing languor. An examination, July 29, revealed a very faint sugar and negative nitroprussid reaction in the urine, with plasma sugar of 0.395 per cent. It was evident that mistakes in the diet at home were subjecting the patient to semistarvation without corresponding benefit, and he was accordingly brought into the hospital, August 2.

Physical Examination.—The patient's height was 5 feet, 8 inches, the weight, 137 pounds. The teeth were much decayed and repaired. The knee-jerks could be barely elicited with reenforcement. The examination was otherwise negative.

Treatment.—The patient insisted on staying as short a time as possible in the hospital. On a diet of 70 gm. of protein, 10 gm. of carbohydrate and 700 calories, the plasma sugar fell to 0.181 per cent., August 7, and moderate nitroprussid reactions were constantly present. With increase of fat to make 1,200 calories, these reactions became heavier and the plasma sugar rose to 0.192 per cent. The patient was dismissed in this condition, August 16, weighing 132 pounds and feeling slightly better. On attempting to work, he became weak and had an attack of indigestion, which alarmed his family so that they brought him back to the hospital, August 22, and persuaded him to stay for more thorough treatment.

On a diet of 40 gm. of protein, 10 gm. of carbohydrate and 1,000 calories, the plasma sugar fell to 0.136 per cent. September 1. Also the blood urea, which had been 52.2 mg. per hundred c.c., fell to 26 mg. The diet was gradually built up, so that the patient by September 30 received 70 gm. of protein, 50 gm. of carbohydrate and 1,400 calories (reduced one seventh by weekly fast-days). The last plasma sugar tests showed 0.147 per cent. fasting and 0.181 per cent. during digestion. The blood urea was 22.8 mg. per hundred c.c. There were constantly slight nitroprussid reactions in the urine. The weight was 128 pounds, and there was a decided improvement of strength and well-being and an absence of pains. The patient was dismissed, October 3, with a reduction of carbohydrate to 30 gm. as a precaution against errors of diet at home.

Subsequent History.—Owing to well-meaning mistakes, the plasma sugar has since varied from 0.115 to 0.277 per cent. It has not been feasible to increase the diet or the weight. The improvement in health has continued, and the patient performs the light duties of his business and asserts that except for some lack of endurance he feels as well as ever in his life.

The case illustrates the frequent difficulties of home treatment even in willing and intelligent households, and the necessity of sufficiently long and thorough supervision and instruction in order to obtain results. It is also an example of the greater or less discomfort and disability which usually result from diabetes even in later life. The case may be classed as moderate in severity, on the basis of the restrictions of diet and weight required. Undernutrition has improved the strength and comfort as well as the prognosis, but the results can never be as good as if thorough treatment had been begun at an earlier stage.

CASE 3 (6).—*History.*—A man, aged 62, married, lawyer, admitted, July 23, 1919, whose father died at 67 of tuberculosis, mother at 67 of cancer, three uncles of tuberculosis, and a grandmother of acute nephritis, and in whose family there was no record of diabetes or obesity, had passed a very healthy life except for childhood diseases. In 1901 an attack of urinary "gravel" incapacitated him for three days. An intense attack in 1911 terminated with the passage of a stone the size of an orange seed. He had a mild attack of "grip" five years before, but was not subject ordinarily to colds. He was moderate in all habits, and his highest weight had been 195 pounds. For the last two years he had noticed gradually increasing loss of weight and strength, polydipsia, polyuria, irritability of temper, and aching in the legs. A physician consulted in June, 1919, diagnosed diabetes and referred the patient to me for treatment.

Physical Examination.—The patient was 5 feet, 11 inches in height and weighed 138 pounds when dressed. The general examination proved negative except for thinness and heavy glycosuria with slight acetonuria.

Treatment.—Instructions were first given for an approximate diet to be taken at home, guessed to represent about 60 gm. of protein and from 20 to 30 gm. of carbohydrate, with as little fat as possible. Glycosuria ceased within a week, but notwithstanding further restrictions of diet and loss of weight, hyperglycemia persisted, and glycosuria returned whenever an increase of diet was attempted. The patient entered the hospital, July 23, weighing 133 pounds, with negative sugar and slight nitroprussid reactions in urine, and plasma sugar of 0.214 per cent. On a diet of 40 gm. of protein and 10 gm. of carbohydrate, heavier nitroprussid reactions developed, and the plasma sugar, July 28, had fallen to 0.115 per cent. This rapid fall of blood sugar may be attributed partly to the more accurate restriction of diet as compared with that at home, and partly to the preceding month of undernutrition. The diet was rapidly increased to 80 gm. of protein, 20 gm. of carbohydrate and 1,500 calories (reduced by weekly fast-days to about 70 gm. of protein and 1,300 calories average). The patient was discharged thus, August 8, with plasma sugar before breakfast of 0.127 per cent. and negative sugar and moderate nitroprussid reactions in the urine. His weight was 130½ pounds.

Subsequent History.—The patient was rigorously faithful, but there were various minor mistakes in his household, so that later the plasma sugar was found to range from 0.106 to 0.234 per cent. Matters improved after a dietitian took charge of his kitchen for two weeks. The weight fell to 116 pounds stripped, but it was possible to increase the diet to 30 gm. of carbohydrate and 2,000 calories, generally with only 60 gm. of protein because of the patient's distaste for it. The weight thus rose to 119 pounds. The plasma sugars during digestion in the forenoon have ranged from 0.148 to 0.197 per cent. Attempts to increase the diet or weight have resulted in glycosuria and increased ketonuria. Nitroprussid reaction in the urine now remain negative. The patient has been maintained at the level stated in the hope of improvement with time.

In all probability the diabetes in such a case existed in mild form for a number of years before the beginning of noticeable symptoms. At the time of initial treatment, the decline of health and strength was becoming rapid. The benefit usually felt when diabetes is checked by diet was about balanced by the undernutrition imposed, so that the patient feels about the same as before treatment. He still carries the full work devolving on him as a prominent lawyer, which he probably could not have done if the diabetes had continued unchecked; but he remains thin, weak, and subjectively unimproved. The chief claim to be made for treatment lies in the prognosis, which can generally be considered good at this age. Overfeeding to the point of marked hyperglycemia and glycosuria damages the prognosis in such a case without building up strength. On the other hand, insistence on rigidly normal blood sugar, necessary in youthful cases, is here unnecessary. For the sake of strength the diet has been pushed to the point of moderate hyperglycemia, and there is hope of falling blood sugar and rising tolerance with time. Though there have never been any symptoms of acute danger, the reason for calling this fairly severe diabetes is the low tolerance, which in six months has not permitted raising the weight above 119 pounds.

SEVERE DIABETES IN MIDDLE LIFE

CASE 4 (25).—*History.*—A man, aged 43, unmarried, wholesale liquor dealer, admitted, Aug. 4, 1919, whose father died with diabetes at 77, whose mother was well at 72, and who had two brothers and four sisters who were well, and one brother who had epilepsy, stated that mild childhood infections, and gonorrhea at 20, had been his only illnesses. He had eaten three ordinary meals a day and a lunch every night, and was guilty of no excesses in food, alcohol or tobacco. He had always been thin, with an average weight of 115 pounds. In 1917 he experienced loss of weight without other symptoms, and a physician diagnosed diabetes. A diet low in carbohydrate without restriction of protein and fat kept sugar absent for six months, but glycosuria had been present most of the time since, and he had suffered from weakness, loss of weight, polydipsia, polyuria, nervousness, dental caries and inflammation of the gums.

Physical Examination.—The patient's height was 5 feet, 2½ inches, and weight 86 pounds. He was delicate and nervous in appearance, but did not present acute symptoms. The teeth showed much repair, and though scrupulous cleanliness had been maintained by frequent washes and a dentist's care, the gums were everywhere red, very dry, and covered with small, superficial ulcers. There was slight dulness of both lung apexes anteriorly and posteriorly, but no active signs of tuberculosis. Knee-jerks were absent. The blood pressure was 84 systolic and 66 diastolic.

Treatment.—Fasting, with the usual clear soup, bran, and agar jellies was begun at entrance on the morning of August 4. The plasma sugar on the morning of August 5 was 0.350 per cent. With continuous fasting to August 12, the urine still showed slight sugar and nitroprussid reactions. There were no signs of danger, and the plasma bicarbonate remained high. The weight had risen by water retention to 89½ pounds. August 13 and 14, a diet of 30 gm. of protein and 135 calories was given. The remaining traces of glycosuria then ceased with a single fast-day, August 15. The plasma sugar was then 0.231 per cent., and the carbon dioxid capacity 69.2 per cent., with nitroprussid reactions positive in the urine but negative in the plasma. August 16, a diet of 10 gm. of protein was begun, increased by 10 gm. daily. Glycosuria appeared with 50 gm. of protein, August 20, and continued on reduced diet, so that fasting was necessary August 23 and 24. An increasing protein diet was again attempted, and glycosuria appeared with 60 gm., August 30. After a fast-day, the plasma sugar on the morning of September 1 was 0.208 per cent. On that day a diet of 60 gm. of protein and 900 calories produced glycosuria, which required two fast-days, September 2 and 3, to stop. On the morning of September 4 the plasma sugar was 0.106 per cent. As such

a rapid fall under such circumstances may be a sign of serious weakness, the diet of 60 gm. of protein and 900 calories was resumed, with the result of slight glycosuria and on the morning of September 6 a plasma sugar of 0.288 per cent. A single fast-day, September 7, brought another sharp drop of the plasma sugar to 0.120 per cent. on the morning of September 8. Thereafter a diet of 30 gm. of protein and 500 calories was tolerated without glycosuria and with only occasional traces of nitroprussid reactions, but the plasma sugar, September 15, was up to 0.238 per cent. It fell by September 20 to 0.120 per cent., and after a fast-day, September 21, to 0.086 per cent. September 22. The diet was then increased to 50 gm. of protein and 700 calories, and by September 27 the plasma sugar had risen to 0.165 per cent. After a fast-day, it was down to 0.130 on the morning of September 29. Though the patient appeared scrupulously faithful and, furthermore, was under close observation, it was deemed prudent to make sure whether his diabetes was actually so severe or whether there was any smuggling or deception. Accordingly, September 29, Dr. Jacobsen[6] performed a protein test, and it was found, with the patient sitting constantly in the laboratory, that the ingestion of 50 gm. of protein in beefsteak sufficed to raise the plasma sugar to 0.203 per cent. in six hours.

Continued undernutrition, in the form of a diet of 50 gm. of protein and 800 calories, with weekly fast-days, reduced the plasma sugar to 0.079 per cent. on the morning of October 13. About this time the body weight reached its lowest level of 69 pounds. The patient, though very feeble, was always out of bed several hours a day. An increase to 60 gm. of protein and 1,000 calories was now tolerated without hyperglycemia. The diets up to this point had consisted strictly of protein and fat, without thrice-cooked vegetables or any possible source of carbohydrate other than a few bran biscuits. October 20, it was possible to proceed to a diet of 60 gm. of protein, 5 gm. of carbohydrate and 1,200 calories. November 1, the patient was discharged on a diet of 70 gm. of protein, 10 gm. of carbohydrate and 1,500 calories; also the weekly fast-days were mitigated by an allowance of 20 gm. of protein and 5 gm. of carbohydrate. The plasma sugar was 0.118 per cent. The weight was 73 pounds, and the patient was up all day and able to take walks.

Subsequent History.—The patient returned to his home in another state, and was able to carry on his private affairs, though remaining practically an invalid. He came back for examination, December 12, with his general condition as at discharge, though distinctly stronger. Sugar and nitroprussid tests were negative in the urine, and the plasma sugar taken at 10:30 a. m. was 0.152 per cent. This figure, during digestion of breakfast and under the stress of traveling, was regarded as a basis for continuing the same diet.

Even in the absence of acute symptoms at admission, the severity of the diabetes makes it probable that it would cause early death if not controlled. The severe measures used were necessary for controlling such a case. When the last traces of glycosuria are unduly persistent, the initial fast may profitably be interrupted by a few days of low protein diet. The subsequent program consists in feeding chiefly protein to keep up the strength as well as possible, while waiting for undernutrition to lower the weight and raise the tolerance. The undernutrition may thus be carried to a point which might otherwise be dangerous, though in such desperate cases it is always necessary to be on the watch for threatening collapse. The skilful use of soup, coffee, agar, bran, celluflour[7] and other materials of little or no food value is an important aid against suffering from hunger. The result in this case was as good as could be expected under the conditions. The teeth and gums were quickly brought to normal, and the trouble from diabetes is now limited to emaciation and weakness. The patient is comfortable as a semi-invalid, and much pleased with his present feelings as compared with the former state of active diabetes. The question remains open how long this condition can be maintained.

6. Jacobsen, A. T B: Am. J. M. Sc., to be published, Case 5.

7. An indigestible cellulose flour, still on a somewhat experimental basis, produced by the Dietetic Cellulose Laboratory, 2557½ West Chicago Avenue, Chicago.

POTENTIALLY SEVERE DIABETES IN YOUNG ADULT

Case 5 (70).—*History.*—A man, aged 28, married, carpenter, admitted, Oct. 6, 1919, whose parents were living and well, knew of no heritable disease in the family. Three brothers and two sisters of the patient died in infancy of unknown cause. His wife and two children were well. He had measles, mumps, chickenpox, whooping cough and diphtheria in childhood. Then he was well until 1912, when he had severe typhoid with three relapses, being dangerously ill in bed for fourteen weeks. Since then he had had vague umbilical and lumbar pains about once a week, not related to meals, which came on especially if he maintained a stationary position, and were relieved by exercise. Jaundice or clay-colored stools were never noticed. He had had regular habits and had eaten heartily in his occupation as a carpenter, chiefly at outside work. He reached his highest weight of 160 pounds during convalescence from typhoid, and thereafter maintained an ordinary weight of 145 pounds. Three weeks before admission his weight was found to be only 137 pounds; he had a severe acute rhinitis with headaches, followed within two days by distinct onset of polyphagia, polydipsia and polyuria. The physician, who was called immediately, diagnosed diabetes, but prescribed lax diets, largely of milk and eggs, on which active symptoms and loss of weight continued.

Physical Examination.—The patient's height was 5 feet, 9¼ inches; his weight, 126 pounds. He was tanned and muscular, and appeared healthy except for moderate thinness. There was marked cervical adenopathy. The knee-jerks were normal. The examination was otherwise negative.

Treatment.—Glycosuria ceased with two days of fasting, while the slight ketonuria increased. From an original 0.357 per cent. the plasma sugar fell rapidly to normal and remained so on a diet of protein alone, beginning with 30 gm. and increasing to 70 gm. October 13, the diet was made 70 gm. of protein, 20 gm. of carbohydrate and 1,200 calories, and increased, October 20, to 70 gm. of protein, 40 gm. of carbohydrate and 1,500 calories. The plasma sugars before breakfast ranged from 0.100 to 0.114 per cent., but one reading taken two hours after lunch was 0.187 per cent. Nevertheless, as the patient was in a hurry to leave, he was discharged, October 26, in the hope that he would improve further.

In the short hospital period he had not become sufficiently impressed with the necessity of exactness, and at home committed several minor indiscretions which caused glycosuria; and though this was checked by fasting and reduced diet, the plasma sugar remained high, and he was therefore readmitted to the hospital, November 27.

Injury to the tolerance was evident, for on a diet of 30 gm. of protein and less than 300 calories the plasma sugar fell slowly to 0.172 per cent., December 1, and 0.110 per cent., December 6. It remained thoroughly normal while the diet was gradually built up through the ensuing weeks to 70 gm. of protein, 30 gm. of carbohydrate and 1,650 calories, on which the patient was dismissed, January 22, weighing 128 pounds.

The pancreatic damage probably dates from the typhoid infection. Glycosuria presumably began some time between this and the first observed diabetic symptoms. The severity of the diabetes was still moderate at admission, but relapse was quick owing to the slight impression made by a short hospital period. The instruction in testing the urine for sugar proved important, as an effectual danger signal was thus given. The longer second period in the hos-

pital established a safer condition on a higher diet. The weight is lower than at admission, but stationary instead of falling. The patient is strong enough to work, but the caloric requirements of manual labor constitute a problem in a case having the elements of severity.

THE EARLY STAGE OF INHERENTLY SEVERE DIABETES IN YOUTH

CASE 6 (61).—*History.*—A youth, aged 19, a dealer in antiques, unmarried, admitted, Oct. 3, 1919, whose mother and one aunt had diabetes, had a healthy life and excellent habits. There was slight obesity. He had measles in childhood, malaria three years before admission, and influenza in the fall of 1918. During the first week of September, 1919, he noticed onset of weakness, polyphagia, polydipsia and polyuria. After steady loss of weight, he consulted a physician, September 25, who discovered heavy glycosuria and prescribed a carbohydrate-poor diet. Glycosuria rapidly diminished so that only a trace was present at admission.

Physical Examination.—The patient's height was 5 feet, 6 inches, and weight, 143 pounds. The patient appeared in good health and nutrition, and normal to all examinations.

Treatment.—After one day of fasting, glycosuria was absent and the plasma sugar was 0.134 per cent. The first day's diet was only 10 gm. of protein, increased by 10 gm. daily to 60 gm., October 8. The urine showed slight to moderate nitroprussid reactions during this time. Carbohydrate was then added, first 10 gm., increased to 40 gm., so that by October 11 the nitroprussid test was negative. The plasma sugar before breakfast, October 13, was 0.106 per cent. Up to this point fat had been so strictly excluded that the highest diet had not been above 500 calories. Fat was now introduced to make 1,000 calories, and increased by October 20 to 1,500. The occasional faint nitroprussid reactions thus produced were ignored. The highest plasma sugar observed was 0.149 per cent. during digestion in the afternoon. The patient was discharged, October 24, on a diet of 70 gm. of protein, 40 gm. of carbohydrate and 1,500 calories. His weight was then 136½ pounds.

Subsequent History.—The patient resumed his regular work and was strictly faithful to diet. The urine remained normal except for occasional faint nitroprussid reactions, but there was difficulty with the blood sugar, such as is frequently encountered shortly after patients return home. In samples taken forenoons during digestion, the highest plasma sugar found was 0.192 per cent., and the lowest 0.150 per cent. The diet was therefore reduced to 60 gm. of protein, 20 gm. of carbohydrate and 1,200 calories, with weekly fast-days. The body weight has thus fallen to 130 pounds, but the plasma sugar does not exceed 0.14 per cent. It will be required to remain below this level during digestion of all meals, and below 0.12 per cent. fasting, even if more weight has to be sacrificed. The patient meanwhile continues his regular work, looks distinctly thin, is a little below full strength and not completely satisfied in his appetite, but never suffers actual hunger.

It is hoped that a diet of 1,500 calories may soon be tolerated; but it is believed that the case represents the early stage of inherently severe diabetes, and that any overfeeding which would give an appearance of increased well-being at the price of hyperglycemia would prove disastrous. A longer period of hospital treatment would have been advantageous. The principal lesson, however, is the strict care which is necessary even in an incipient case, and the irremediable downward progress that would result from depending on urine examinations and ignoring the signs of overtaxed function evident in the blood.

JUVENILE DIABETES IN STAGE OF MODERATE SEVERITY

CASE 7 (44).—A boy, aged 5, admitted Aug. 31, 1919, whose parents and two brothers were well, though both grandfathers and the paternal grandmother had diabetes, had always been a vigorous, active child, plump but not obese. Measles at 3 years had been the only illness. He was not subject to colds or tonsillitis and indulged in no excesses in sweets. He had an infected wound of the face in May, 1918. Jan. 12, 1919, his mother noticed polyphagia, polydipsia and polyuria, and found that his weight had diminished by 2 pounds. The physician found 7 per cent. glycosuria, and treatment was begun at once. A two day fast produced sugar freedom, and carefully restricted diets were used thereafter, but glycosuria kept returning at frequent intervals. The weight at onset was 38½ pounds, and it had increased to 42½ pounds. During the last month glycosuria had occurred every few days, and the patient was referred for treatment on this account.

Physical Examination.—The patient was a well developed, handsome child, apparently in perfect health and nutrition. He had left cervical adenopathy, supposedly the result of the face wound. The knee-jerks were normal and the Wassermann test negative. Examination was otherwise negative.

Treatment.—The urine was free from sugar, but showed continuous heavy nitroprussid reactions. The plasma sugar before breakfast was 0.120 per cent. September 1, a diet of 50 gm. of protein was begun, and from September 2 an addition of 10 gm. of carbohydrate was made daily, while fat was excluded as far as convenient. September 9, glycosuria appeared with 80 gm. of carbohydrate, while slight nitroprussid reactions still persisted. No fasting was imposed, but the foregoing program was repeated, and glycosuria returned when the increase of carbohydrate reached 60 gm. September 16, the nitroprussid reactions had become faint. A diet was then begun of 60 gm. of protein, 45 gm. of carbohydrate and 600 calories, with weekly fast-days. The plasma sugar, September 20, was 0.102 per cent. As a skilled diet nurse was available, the parents were allowed to take the child home at this stage. The weight was 39 pounds.

Subsequent History.—September 28, the plasma sugar before breakfast was 0.15 per cent. Unduly high figures continued thereafter, notwithstanding a temporary reduction of diet to 40 gm. of protein, 20 gm. of carbohydrate and 450 calories. Attention was then given to the fact that the office visits involved a long automobile ride from the home in the country, with some attendant excitement; and by keeping the child over night at the hospital, normal sugar values have been obtained both fasting and during digestion. The nitroprussid tests are continuously negative. The child holds an even weight, 3 or 4 pounds below that at admission. He still looks well and is active, but yet is weaker as well as thinner than when received, and the fast-days are especially depressing. The diet is now being gradually increased, and gain of strength is to be expected if a sufficient ration can be tolerated.

The physician in charge had succeeded in keeping this child in an appearance of perfect health and strength during one year of diabetes, and also the plasma sugar before breakfast was normal. The overprosperous appearance had been maintained by the liberal use of fat. The tolerance had now fallen so that glycosuria was increasingly frequent from the small quantities of carbohydrate employed. At the same time there was marked continous ketonuria, even though the plasma bicarbonate was still normal. Continuance of the high fat diet involved three possibilities: If the carbohydrate should be diminished, the acidosis would increase; if the carbohydrate should be continued the same, the increasing glycosuria would soon bring still greater acidosis; if the carbohydrate should be increased, it would give a temporary diminution of acidosis at the price of a rapid breakdown of assimilation followed by the most dangerous acidosis of all. Therefore the program adopted was to exclude fat, to give 50 gm. protein for maintaining strength, and to take advantage of the increased tolerance gained by undernutrition for the purpose of pushing

carbohydrate so as to abolish acidosis. This result was slow and difficult to attain, because the excess in fat had been so long. The only benefit of the treatment to date has been the clearing up of glycosuria and acidosis, at the price of a certain amount of weight and strength.

The expectation now is to add to the diet so far as possible without a return of hyperglycemia or ketonuria. Some degree of thinness is inevitable from the nature of diabetes, but the family, especially the mother, hold the ideal of a fat child. Though the child does not now appear pathologically thin to a casual observer, this insistence on fattening is likely sooner or later to ruin the entire result in this case.

This case is presented as illustrating some of the practical difficulties of treatment. A diabetic child is not a well child and is often irreparably injured by the attempt to keep it appearing like a well child. Without hazarding a prediction of the ultimate outcome, there is now firm basis for two assertions concerning the possible benefits of thorough treatment of juvenile cases from the earliest stage: first, the three year limit of life no longer holds; second, comfort and happiness are greater than when active diabetic symptoms are permitted. As the diabetes is not cured, these benefits are purchased at a price. For the child, this is continuous undernutrition corresponding to the severity of his diabetes. For the household, the presence of an ailing child who is known to be incurable, the constant exact care of the diet or the keeping of a nurse for the purpose, and the nervous tension associated with the various vicissitudes and tests, constitute a serious burden. Obviously, this is no worse than the situation existing with many forms of chronic disease. With mothers of the old-fashioned type, it is possible for the child to receive correct care for an indefinite period with little disturbance of the home life. Some records of favorable progress and longevity, illustrating the brighter possibilities of juvenile diabetes, may be published later.

Half-measures are hopeless in children. It is fair to ask that those who believe in high diets should follow them consistently, and not merely through the mild stage when temporary weight and comfort are so easily maintained at the price of irremediable injury and subsequent suffering. If thorough control of the diabetes is the policy chosen, normal urine and blood should be insisted on from the time of the earliest diagnosis, for only thus can the best prognosis along with the best lasting nutrition be attained.

SEVERE JUVENILE DIABETES

CASE 8 (23).—*History.*—A schoolboy, aged 15, admitted Aug. 5, 1919, with family and personal history negative, had always been fat, while both parents were spare built. In January, 1918, it was first noticed that he was losing weight. He was taken from school and given abundance of milk and nourishing food; intense polyuria and polydipsia developed. The curious feature was that several urinalyses by the family physician and one by a commercial laboratory were reported negative, and no diagnosis was made until, in May, 1919, failing vision sent him to an oculist, who diagnosed double diabetic cataract and referred him to a consultant, who found 4 per cent. glycosuria. The weight, which had originally been 96 pounds, remained above 75 pounds up to this time, and then began to fall rapidly. Finally the patient was taken to a hospital in desperate condition, July 14, and subjected to fasting, but sugar-freedom was found difficult and heavy glycosuria returned with every attempt to feed. In consultation, July 31, there were found heavy sugar, nitroprussid and ferric chlorid reactions in the urine, blood plasma creamy with fat, plasma sugar 0.441 per cent., and carbon dioxid capacity 68 per cent. by volume. The last figure was largely explained by the use of alkali; the plasma gave a heavy nitroprussid reaction. Weakness and emaciation were extreme but not actually critical. Alternation of fasting and very low protein diet was advised. The patient was transferred, August 4.

Physical Examination.—The boy's height was 5 feet 6¾ inches, his weight 66 pounds. Except for emaciation, cataracts and absent knee-jerks, examination was negative.

Treatment.—The urine at admission showed only slight sugar and nitroprussid reactions. The plasma sugar was 0.410 per cent., the carbon dioxid capacity 76.8 per cent. by volume. There was no visible lipemia, and only a faint nitroprussid reaction in the plasma. Notwithstanding the serious weakness, fasting was continued from August 4 to 12, with only thin soup, coffee and agar jelly, bran being omitted for fear of its possible carbohydrate. The renal permeability was peculiar, for while only traces of glycosuria, too small to titrate, were present at admission with plasma sugar of 0.410 per cent., these traces continued with plasma sugar, August 12, of 0.259 per cent. August 13 and 14, 30 gm. of protein and whisky to make 300 calories were given daily, with resulting gain of strength and fall of the plasma sugar to 0.205 per cent. A trace of glycosuria was still present, but ceased on fasting with whisky, August 15. The same program was continued, August 16. Whisky was then stopped, and protein alone given, August 17, 20 gm.; August 18, 30 gm.; August 19, 40 gm. Slight glycosuria then resulted, with plasma sugar of 0.250 per cent. It was then attempted to keep the protein at 25 gm. and increase calories with fat to 600; but glycosuria with plasma sugar of 0.268 per cent. resulted, August 23. With a single day of fasting and whisky, August 24, the plasma sugar fell to 0.188 per cent. A diet of 15 gm. of protein and 400 calories was then given for a week, and, August 31, the first fast-day without glycosuria was given; the plasma sugar before it was 0.192 per cent., and after it 0.150 per cent. The same diet with weekly fast-days was continued, and the plasma sugar after the fast-day of September 7 was 0.127 per cent., and after the fast-day of September 14 it reached the normal level of 0.115 per cent.

The diet was gradually increased to 30 gm. of protein and 700 calories, without glycosuria and with only faint traces of ferric chlorid reactions, notwithstanding the strict exclusion of carbohydrate. In spite of the long undernutrition, the weight tended to rise by invisible water retention, and, October 15, reached its highest point of 72½ pounds. The strength improved correspondingly, and the boy was out of bed all day. Also, October 3, the more advanced cataract was uneventfully removed, and no retinitis found behind it. The clear vision of one eye in place of the former almost complete blindness contributed most of all to the patient's happiness. But the plasma sugar after the fast-day of October 12 was up to 0.192 per cent., and the calories were therefore reduced to 500, leaving the protein at 30 gm. After October 20, 5 gm. of carbohydrate was given daily. The plasma sugar before breakfast, October 25, was 0.155 per cent.; after the fast-day of October 26, it was 0.125 per cent. It was 0.097 per cent., October 31, and the diet was therefore increased to 30 gm. of protein, 10 gm. of carbohydrate and 600 calories. The plasma sugar was 0.12 per cent. on the morning of November 10, but gradually rose to 0.174 per cent., November 19. The carbohydrate was therefore diminished to 5 gm. On this diet, plasma sugars before breakfast were obtained as follows: November 29, 0.139 per cent.; December 5, 0.128 per cent.; December 10, 0.142 per cent. With a view to improving strength, the diet was changed to 40 gm. of protein and 600 calories, and later increased to 50 gm. of protein and 650 calories. This regimen has continued to the present. The plasma sugars have held about the same slightly elevated range of values as stated. Even on salt-free diet to remove edema, the weight has not fallen below 67 pounds, which is 1 pound above the entrance weight. Both sugar and nitroprussid reactions are continuously negative in the urine.

Unfortunate delays in the diagnosis of diabetes are still encountered even among practitioners of good repute, but are becoming less frequent. The damage in such a case is irreparable. The boy remains emaciated, weak and always more or less hungry. It is inconceivable that he should live to maturity, and during life he is cut off from practically all normal pursuits. Favorable features in his treatment may be thus enumerated: Actual suffering from hunger is prevented by the use of materials to furnish bulk (bran, agar, celluflour, "India gum," liquid petrolatum, soups, small quantities of thrice boiled vegetables), without which such low diets would scarcely be practicable. The boy has become strong enough to keep the average hours of a normal boy, and to go walking or riding every day, his pedestrianism amounting to 6 or 8 blocks without weariness.

Operations may be performed with safety, and wounds heal well when diabetes is controlled even at this extreme stage; therefore the sight of one eye could be restored and the same can be done for the other at the proper time. Having exceptional artistic talent, the boy now is able to keep himself constantly amused with drawing and painting. He has a naturally cheerful disposition, and though an invalid, his continuous enjoyment of life is genuine and not pretended.

Such cases suggest the possibilities open when thorough treatment is employed from the earliest stages.

SUMMARY

A possible form of low-calory diet after fasting is one composed wholly or chiefly of protein, and this plan has seemed to be most useful for maintaining strength during the period of undernutrition necessary for attaining a normal blood sugar. In some elderly patients slight hyperglycemia and nitroprussid reactions may be permissible to avoid undue hardships, but diabetes after the age of 40 is by no means always benign, and not infrequently requires stringent measures to control it, especially after long neglect. The more severe the diabetes and the younger the patient, the more rigorously should hyperglycemia and all other symptoms be controlled from the outset. Such a policy often means a considerable reduction of weight and strength as compared with the level which can be maintained temporarily by higher diets, and its justification depends on the belief that patients are best off in the long run when their weakened function is spared as thoroughly as possible.

5 East Fifty-First Street.

Alcoholic Hair Tonics.—Assurance of 100 per cent. cooperation in the enforcement of the prohibition laws were given by representatives of the barbers' supply and perfumes trade organizations at a hearing before Prohibition Commissioner John F. Kramer and officials of the Bureau of Internal Revenue to discuss ways and means for rendering certain alcoholic preparations now on the market undrinkable. After Jan. 16, 1920, the date the national prohibition act becomes effective, such preparations cannot be legally manufactured or sold if fit for beverage purposes. Dr. A. B. Adams, chief chemist of the Bureau of Internal Revenue, declared there are on the market many hair tonics whose principal ingredient is alcohol and that they are hair tonics in name only. Such preparations must be modified to conform to the law. The bureau has under consideration a requirement that in the manufacture and sale of bay rum there be added a quarter of a grain of tartar emetic for each fluidounce.—*United States Bull.*, Dec. 8, 1919.

THE FEEDING OF NORMAL INFANTS DURING THE SECOND YEAR

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Whether or not it has been nursed or fed artificially, a baby, when it is a year old, will be taking, in most instances, whole milk or whole milk with a cereal diluent. If it follows the present fashion, it will almost certainly be receiving orange juice in addition. It will probably be taking some of the simple cereals and perhaps broth and beef juice. If it is being fed properly, it will not, in my opinion, be given anything else.

NEED OF CEREALS AFTER FIRST YEAR

If the baby is not getting cereals when it is a year old, they should be given at once. The simplest and most digestible cereals are barley jelly, oat jelly and farina. They should be given at the beginning of two feedings daily with milk and salt, but no sugar. Cream should never be given to babies, and sugar is unnecessary. It is idle, of course, to say that a little sugar will do harm. Almost all babies and children are, however, fond of sugar, and the tendency of almost all children is to take more sugar and sweets and to refuse foods that are not sweet or sweetened. The most common cause of indigestion in childhood is sugar and its products. If the baby is taught from the first to eat things without sugar, it learns to like them in this way and, as it grows older, is willing to eat proper food. Much trouble in the future is thus avoided if babies are never given sugar or sweet foods. Cream of wheat, Ralston and rice may be given after a few months, and it is not necessary to strain the oatmeal after the baby is 18 or 20 months old. Cereals that are not cooked in the house and the sweet cereals should never be given to babies.

BROTH AND BEEF JUICE

If the baby is not already receiving broth and beef juice, these should be given at the beginning of another feeding when the baby is a year old or soon after. Chicken and lamb or mutton broth are much more digestible than beef broth. Not more than 4 ounces should be given at a feeding, because of the danger of "filling up" the baby and destroying its appetite for more nutritious food, the value of clear broth being practically nil. The expressed beef juice is far preferable to any other form. Not more than 2 teaspoonfuls should be given at first, and never more than 2 ounces before the end of the second year, because beef juice makes many babies nervous and sleepless. It must not be forgotten in this connection that the nutritive value of beef juice is only about half that of an equal quantity of milk.

ZWIEBACK, BREAD AND RICE

A month or two after broth and beef juice have been started, zwieback, bread crumbs and rice should be given in them. If the baby has a sufficient number of teeth to enable it to chew properly, it may be given zwieback, toast bread, stale bread or plain white cracker "in its hand" to eat after one or more feedings. It should never be given these things between feedings, because it is of great importance for the baby to acquire early the habit of eating only at meal times.

Bread and crackers may also be given in milk or in the form of milk toast or cracker milk toast in place of, or in addition to, the cereal at the last meal of the day.

LAXATIVES

It is probably advisable, although not usually necessary, to continue the orange juice, especially if there is a tendency to constipation. If there is, prune juice or pulp and baked apple may be given instead of, or in addition to, the orange juice. The orange juice should be given an hour before some feeding, and prunes and baked apple at the end of some feeding.

Plain boiled macaroni, preferably riced, may be added to the diet at 15 or 16 months. At this time, or a little earlier, the milk at the midday meal may be given in the form of junket or plain blanc mange. It is most unwise, I believe, to begin potatoes before the baby is a year and a half old. Throughout infancy they should be given only when baked, and then sparingly. There is apparently no other form of starch so hard for the baby to digest and so likely to cause fermentation.

THE USE OF EGGS

It is also unwise, in my opinion, to give eggs before the baby is eighteen months old. Half an egg may then be given once or twice a week, and a little later a whole egg three times a week. In my experience, few babies can take more without being disturbed. If babies can take eggs without disturbance, a number of other articles that are made with eggs can then be added to their diet. These are baked custard, rice pudding and bread pudding. Eggs should be given to babies coddled, soft-boiled, dropped or poached and in no other ways.

MILK AS THE BASIS OF DIET

Milk should form the basis of the diet during the second year, and an important part of the diet for several years longer. It is probably wise to limit the amount of milk to a quart daily. This quantity provides enough nourishment to cover a considerable part of the caloric needs. If more is taken, it is likely to destroy the appetite for other articles of food.

MEAT AND GREEN VEGETABLES

The diet outlined above is all that is necessary or advisable for the average, normal infant up to the end of the second year. At this time I add meat to the diet and sometimes green vegetables. Ordinarily, however, I wait some months longer before adding the green vegetables. The most easily digested meats are the white meat of chicken, lamb chop and scraped beef. These are, therefore, given first. The most easily digested vegetables are, in my experience, spinach, string beans, peas, asparagus and stewed celery. The spinach, string beans and peas should always be rubbed through a sieve or a colander. Carrots are much less digestible and should always be mashed. My subject, however, is the diet of the normal infant during the second year, and infancy ends with the close of the second year. I must not, therefore, further consider any articles of diet that, as I believe, should not be given until infancy is passed.

THE LIBERAL DIET

I am well aware that the diet which I have outlined is old fashioned and that many, perhaps the majority, of pediatricians and practitioners feed much more liberally. I know that many give green vegetables to babies that are artificially fed when they are only 6 months old. Some of them may give them also to breast-fed babies. I do not know. I know that many give eggs and meat at a year and feed babies of 2 years more liberally than I would feed children 4 or 5 years old. Why is it that so many pediatricians feed babies so much more liberally than was the custom some years ago? Are there any good reasons for the change, or are they blindly following a new fashion? Do the babies do any better when they are fed so liberally, or do they thrive better when they are fed simply? If they do better on one system than the other, why do they? If they do not, why do they not? Ought those who feed simply to adopt the newer and more liberal methods, or ought those who feed so liberally go back to the simpler methods of their elders?

It is very difficult to answer these questions on the basis of clinical experience. My own experience has been that babies thrive on the simple diet that I have outlined. The not inconsiderable number of babies brought to me because they are not thriving on the liberal diets prescribed by other pediatricians convinces me that some babies, at least, do not do well on these liberal diets. These babies do well, however, when given simple diets, which would seem to show that the simple diet is better and that the babies which do well on a liberal diet do so in spite of the diet rather than because of it. I have no doubt, on the other hand, that other men may have seen babies which were not doing well on the simple diets prescribed by me and which did well at once on the more liberal diets that they ordered. They would, of course, draw entirely different conclusions from their experience than I would from mine. Would either of us, neither of us or both of us be justified in our conclusions? I am inclined to think neither of us.

WHAT NATURE TEACHES US

Does Nature teach us anything of value as to the solution of this problem? Very little. As Nature provides a supply of breast-milk sufficient under normal conditions for the needs of the baby for nearly a year, it seems evident that Nature did not intend breast-fed babies to have eggs, meat and green vegetables when they were 6 months old. Nature teaches us nothing, however, as to what the baby should eat after it is a year old or what an artificially fed baby should have to eat during the first year, except the general indications afforded by the composition of human milk. These are that the baby's digestive powers are best fitted to take care of a dilute food relatively high in fat and carbohydrates and relatively low in proteins, with the protein in an easily digestible form. It would seem reasonable on the basis of these indications to believe that artificially fed babies should be given a simple diet along these lines rather than a diet that makes demands on the digestive powers for which they are apparently not fitted. We are, nevertheless, not justified in drawing too definite conclusions as to what indications Nature gives us as to the feeding of babies, as is shown by what we know of starch. There is no starch in human milk, and it would seem, therefore, as if a baby could not digest starch. Nevertheless, we have found that the power of starch digestion is well developed at birth, and that babies have no disturbance of digestion when mod-

erate amounts of starch are added to their foods. We must be careful, therefore, in drawing conclusions from what Nature seems to teach us as to the artificial feeding of babies.

IS THE SIMPLE DIET SUFFICIENTLY NUTRITIOUS?

Rather than to attempt to prove at once that the simple diets are preferable to the more liberal, it seems to me better first to ask what arguments those who believe in the liberal diets are likely to advance in their favor. It seems to me that they may claim that the simple diet is not sufficiently nutritious; that it does not contain a sufficient amount of certain elements, such as vitamins and salts, necessary for the well-being and development of the baby, and that it tends to the development of constipation, while their liberal diet corrects all the deficiencies of the simple diet. They certainly cannot claim that the liberal diet is more digestible than the simple diet. It is self-evident that it is not, and it must be admitted without question that whatever advantage there may be in easy digestibility lies with the simple diet.

Let us take up first the nutritiousness of the diet; that is, its caloric value. The caloric needs of the average baby of a year are at a liberal estimate not over 1,000 calories daily and of a baby of two years not over 1,200 or 1,300 calories. The quart of milk which is recommended in the simple diet provides 670 of these calories. Two or three tablespoonfuls of cereal, a slice of bread and the juice of an orange will bring the total up to 1,000 calories. If there is no lack of calories in the simple diet at the beginning of the first year, there will certainly be no lack later, when the diet is increased. The protein needs of babies in their second year vary between 20 and 30 gm. daily. A quart of milk contains 34 gm. It is evident, therefore, that the simple diet outlined amply provides for the caloric needs of babies in the second year and more than covers their protein needs.

THE VITAMINS

Now as to the argument that the simple diet may not contain enough vitamins, or accessory food factors: The fat of milk contains an abundance of the fat soluble A. If a baby takes a quart of milk daily, it will have no lack, therefore, of this element. Milk is also rich in the water soluble B. A baby that takes a quart of milk will thus also be amply provided with this element. It will, moreover, get a certain amount of these elements in its other food. Judging from the fact that babies grow satisfactorily on an exclusively milk diet during their first year, it seems reasonable to believe that milk contains a considerable amount of the hypothetic growth vitamin. A quart of milk daily will presumably furnish enough of this in the second year. Milk is known to be low in antiscorbutic power. Nevertheless, a pint of milk contains enough antiscorbutic element to prevent the development of scurvy during the first year. A quart of milk would be expected to furnish enough during the second year. If the baby is taking orange juice, moreover, the question of the antiscorbutic power of the rest of the diet will never arise.

MINERAL SALTS

The salts which may reasonably be considered in this connection are those of calcium, phosphorus and iron. The average amount of calcium retained by infants is between 0.17 and 0.18 gm. daily. One liter of cow's milk contains from 1.65 to 1.98 gm. of calcium oxid.[1] Other figures given are that infants require 5 grains of calcium daily, and that a quart of milk contains 22 grains.[2] Next in calcium content come eggs; then the cereals, especially rice; then some of the vegetables, such as radishes, asparagus and spinach. Foods poor in calcium are meat, fish, bread, fruits and potatoes. It is evident, therefore, that the baby that gets milk will not suffer for lack of calcium. Furthermore, eggs and cereals contain more calcium than do the vegetables.

Milk contains so much more phosphorus than the baby can possibly utilize that it is not necessary to consider this element further.

I have been unable to find any figures as to the needs of babies for iron. A liberal estimate of the adult's need of iron is 0.015 gm. daily. Taking the average weight of the adult as 150 pounds and that of the average baby between 1 and 2 years of age as 25 pounds, the infant's requirement will be one sixth of the adult's, or 0.0025 gm. daily. Milk is a food notoriously low in its iron content. Nevertheless, a pint of milk contains 0.0009 gm. of iron, and a quart 0.0018 gm. of iron, or more than two thirds of a baby's daily needs. An ounce of beef juice contains 0.00198 gm. of iron. The value of this iron is, however, probably not as great as it would seem to be, because the iron contained in hemoglobin and its derivatives is very poorly absorbed. The yolk of an egg contains 0.0015 gm., three tablespoonfuls of cooked cereal 0.0009 gm. and one and one-third slices of bread 0.0003 gm. of iron. It is quite evident, therefore, that the baby taking the simple diet will not lack for iron. Furthermore, the iron content of the green vegetables is not as great as would seem from their color. An ounce of fresh spinach contains 0.00094 gm. of iron; 1 ounce of string beans, 0.00047 gm.; and 1 ounce of carrots, 0.00023 gm. These figures have been calculated from the tables given by Carter, Howe and Mason.[3] Moreover, it would seem more reasonable, provided the simple diet did not contain enough iron, which it does, to give the baby some preparation of iron than to take the chance of upsetting the baby's digestion by giving green vegetables. The argument which may be raised by some that the iron in the green vegetables, being organic, would be better utilized is erroneous, because it has been conclusively proved that organic and inorganic iron are equally well utilized.

THE NEED OF BULK

Now as to the question of constipation: It is true that green vegetables act as laxatives by increasing the bulk of the intestinal contents and perhaps also by certain irritating elements stimulating intestinal peristalsis which they may contain. Bulk is not lacking, however, in the simple diet, for milk provides a considerable residue. Orange juice, prune juice and baked apple are as good laxatives as green vegetables and less likely to disturb the digestion. There is, therefore, not likely to be any necessity for the use of the green vegetables for the relief of constipation.

1. Morse and Talbot: Diseases of Nutrition and Infant Feeding, New York, the Macmillan Company, 1915.
2. Hutchinson: Food and Dietetics, New York, William Wood and Co., 1917.
3. Carter, Howe and Mason: Nutrition and Clinical Dietetics, Philadelphia, Lea and Febiger, 1917.

THE SIMPLE DIET VINDICATED

The arguments that it was thought might be advanced by the believers in the liberal diets against the simple diet in favor of the liberal diets have, therefore, no basis in fact. What other explanation can there be of the present tendency to increase the diet so rapidly during the latter part of the first and the second year of life? It can be traced back to the time, I think, when the majority of physicians in this country accepted without question and without thought everything that came from Germany. German babies were given sausages and sauerkraut; consequently they believed that American babies ought also to take them. Another possible reason is the general tendency of physicians, especially young ones, to believe that everything which is new is right and everything which is old is wrong. Physicians are in general altogether too willing to accept any new teaching as true, if it is new or different. This, to my mind, is wrong. We should not discard the old and tried in favor of something new, simply because it is old, and should not accept the new until it has been proved to be better than the old. We must not forget that there are fashions in medicine as well as in dress, and that the new fashions are often no improvement on the old. On the other hand, we must be open-minded and be willing to accept the new when it is better than the old and not reject it because it is new. I have tried to be open-minded on this question of diet for babies during their second year, but perhaps I have not succeeded. My conclusion after due consideration, observation and experience is that the old fashioned simple method of feeding is better and safer than the newer and more liberal diet.

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THE DIAGNOSIS OF HEART DISEASE IN YOUNG PEOPLE*

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One of the most important lessons that the civilian physician learns from his army experiences is the need of more accurate diagnosis of heart conditions in young people. A discussion of this subject is particularly apropos at the present time, because still fresh in our minds and still fresh on the pages of many medical journals are the descriptions of the soldier's heart, or effort syndrome, or cardiac neurosis, or neurocirculatory asthenia—call it what you will. For definition of this condition, effort syndrome, with which the diagnosis of heart disease is so often confused, I refer to the excellent writings of Thomas Lewis[1] and Alfred Cohn.[2] Lewis writes as follows:

> When a healthy man takes exercise, and this exercise is sufficiently stressful or prolonged, he becomes aware at the time of the effort, or after it has ceased, of certain symptoms, and he presents certain physical signs. The most notable of his symptoms is breathlessness, a symptom which comes during the exercise and continues with diminishing intensity for a variable period afterward. During the exercise, consciousness of the heart beat may come; giddiness or actual faintness or fatigue may be added. At the cessation of the exercise, aching of the limbs, tremulousness and exhaustion are experienced; at a later period, stiffness of the muscles, a feeling of lassitude and sometimes actual malaise and tremulousness are noticed. In cases of extreme effort, pain over the precordial region, at first aching but exceptionally more violent and widespread, may be felt. During the period of exercise the heart rate and blood pressure are raised; the alae nasi are dilated, the accessory muscles of respiration are brought into action to increase the tidal flow of air. To these physiological symptoms and signs briefly described as a group I apply the term *physiological syndrome of effort.* . . . The difference in symptomatology which exists between health and this form of ill health is largely a difference in degree; the gage is the amount of work which, performed in a given space of time, will provoke the symptoms. Symptoms produced in normal subjects by excessive work are produced in the patients by lesser amounts; the smaller amount of work required, the more severe the malady. Naturally, there is no sharp line of division; there is in a large group of patients a perfect grading from the healthy man to him who is seriously unwell. We are traveling in the borderland between health and disease. This point of view has its value; it directs investigation toward the normal reactions of the body to exercise and to the corresponding reactions in disease; it brings us to inquire into the reserves of some of the most important bodily functions, and into the manner in which these reserves are reduced.

He also states that:

> One of the largest groups of effort syndrome is that of constitutional weakness, nervous or physical or both. In this group are many who show incomplete or imperfect development. To it belong many undersized men, many with flat or elongated chests and instances of infantilism; to the same group belong many with family histories tainted by insanity or epilepsy, and those who in childhood were nervous weaklings, bed-wetters, somnambulists, etc.

The term "effort syndrome" is incomplete, in that it does not express the reaction of these patients to excitement. Excitement alone may produce the same symptoms as effort.

Since my return to civil life, I have noticed a group of cases, particularly in young women, which had been diagnosed as heart disease, sometimes for years, not infrequently as mitral stenosis, and which I feel were no more heart disease than were cases of effort syndrome encountered in soldiers during the war. In the Massachusetts General Hospital I have seen twelve such cases in the past six or eight weeks. The importance of this matter is obvious. If these patients have not heart disease—and the evidence is against their having heart disease—reassurance and treatment of their nervousness are the important therapeutic measures. Much worry has been occasioned and much time has been lost for some of these people as the result of the inaccurate diagnosis in the past. Since young women, as compared with young men, are generally more subject to exhaustion or irritability of the nervous system, it is likely that they more often develop the effort syndrome. It is not, however, merely in young women that we have seen the incorrect diagnosis of mitral disease.

Other conditions besides effort syndrome which, because of the symptomatology, may simulate heart disease are hyperthyroidism and infectious diseases.

In the past, great stress has been laid on the symptoms ordinarily found in serious heart disease, dyspnea, palpitation, precordial pain and tenderness, but more and more it has become obvious that the same symptoms may occur when the heart is apparently sound and when the condition is that of effort syndrome or

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* From the Massachusetts General Hospital.

1. Lewis, Thomas: The Soldier's Heart and the Effort Syndrome, New York, P. B. Hoeber, 1919.
2. Cohn, Alfred: The Cardiac Phase of the War Neuroses, Am. J. Sc. **158**: 453, 1919.

nervousness. As the patient's attention is called to his or her heart, the symptoms tend to become more and more aggravated. In old people these symptoms are probably much more significant of heart trouble, but in young people who are nervous and in whom no signs of heart disease can be found, the presence of dyspnea and palpitation and even precordial pain should be regarded as very uncertain evidence of heart disease.

To which of the symptoms and signs must we pay especial heed in the differential diagnosis between effort syndrome and early or slight actual heart involvement? In the first place, a past history of rheumatic fever is certainly important and tends to support a diagnosis of heart disease. On the other hand, a familial or personal history of nervousness or nervous prostration is much more in support of the diagnosis of effort syndrome. The symptoms of dyspnea, palpitation, pain and tenderness are insufficient for differential diagnosis. Lewis[1] states that "breathlessness of purely cardiac origin is always accompanied by general cyanosis—slight, moderate or extreme."

Some physicians have paid much attention to tachycardia, extrasystoles and systolic murmurs in diagnosing heart disease. Here again we may be led astray, since all these conditions are apt to be found in people with the effort syndrome. A recent discussion by Lewis[3] covers these points.

Positive evidence of heart disease on physical examination includes any of the following:

1. Definite cardiac enlargement, to be determined, if in doubt, by teleroentgenography or orthodiagraphy.

2. The presence of a diastolic murmur. If one suspects the presence of a presystolic murmur and cannot be sure of it, it is usually wiser to consider it as not existing. Such a patient should be checked up by later examination. The exercise test used to bring out a presystolic murmur also causes in cases of effort syndrome the first sound to become so forcible and tumultuous that a mistaken diagnosis of mitral stenosis may sometimes be made from the character of this sound.

3. A systolic murmur at the apex, if very loud, and especially if it masks the first sound, usually means evidence of actual involvement of the mitral valve. The slower the pulse the more important is this murmur. Transmission of the systolic murmur to the axilla and back depends on the intensity of the murmur: the more intense the murmur the further it is transmitted, and the more likely it is to be evidence of organic valve disease. Therefore, transmitted murmurs are more apt to be evidence of true mitral disease, but not necessarily so.

A very loud systolic murmur at the base, with thrill, indicates the presence of stenosis of the pulmonary valve or of the aortic valve.

4. The presence of serious arrhythmia, that is, heart-block or auricular fibrillation, if not the result of digitalis.

5. Congestion of the veins of the neck.

6. Enlargement of the liver. Edema of the feet and legs, or, if a patient is in bed, of the sacral region; ascites and hydrothorax, and edema of the lungs.

7. Cyanosis.

The presence of very severe anginal pain is in favor of organic heart disease. The presence of extreme nervousness, tremor, sweating, and other vasomotor phenomena favors the diagnosis of effort syndrome. Occasionally one finds a combination of the two conditions which may give rise to a good deal of difficulty in diagnosis.

3. Lewis, Thomas: On Cardinal Principles in Cardiological Practice, Brit. M. J. **2**: 621 (Nov. 15) 1919.

Meredith[4] has recently found among 2,000 young women in college and in clerical and factory work, 193 who had been told by physicians that they had heart trouble, usually valvular, and had been advised to work as little as possible and to rest all they could. On examination, she failed to find in these 193 women evidence of organic heart disease, but she did find functional heart disturbance which she ascribed to myocardial subdevelopment, but which, from her description of the symptoms and signs, fits very well in the effort syndrome class. These women should, of course, have their attention distracted from the heart, and their life occupied with work and play which will not be too strenuous for them. Neuhof[5] has recently discussed the irritable heart as found in general practice. He considers the vasomotor symptoms more pronounced in civilian cases than in soldiers. He says, "The fundamental cause of the cardiac neurosis with its various manifestations, seems due to hyperexcitation of the sympathetic nervous system."

There is one further point to which I should like to call attention and that is, that even when the heart is damaged and a diagnosis of slight involvement can accurately be made, the life of the individual should not be too closely restricted or the patient too much alarmed over the abnormal heart finding. It has been shown by Mackenzie and others that people with slight heart disease may live active, useful lives without difficulty.

REPORT OF CASE

A case is herewith reported in order to illustrate the differential diagnosis between heart disease and effort syndrome.

History.—M. H., woman, aged 28, single, machine operator at a box factory, reported that she had always felt run-down and had become very tired operating a heavy machine, which she had done for the last eight years. Two years before, after a hard day, she fainted and had palpitation. No more fainting attacks had occurred, but there had often been palpitation, exhaustion and dyspnea, especially after exertion or excitement. Needle-like precordial pains occurred with the palpitation, beginning with the first attack two years before. The pain never extended to the back or arms. There was no history of fever, loss of weight, cough or hemoptysis. The palpitation consisted of pounding of the heart, at times irregular, like a double beat felt in the chest and head. Running for a car would sometimes start an attack of palpitation. The patient had always been easily excited; was very nervous and "trembly"; and this condition had grown gradually worse. Two years ago she went to a physician and was told she had "bowel trouble, not heart trouble." She had not worked for the past three months, and had been in bed off and on. She felt more exhausted and her heart seemed weaker in the morning than in the evening.

There was no history of infection of the rheumatic type.

The father died young; the mother was living, but was very nervous.

Physical Examination.—There was no cyanosis. The thyroid gland was palpable but not definitely enlarged. No exophthalmos. A slight tremor was noted. Knee jerks were very active. No cardiac enlargement could be made out; rhythm was regular at rate of 98; there was a soft systolic murmur at the base, the first sound at the apex was very loud and accentuated by exercise; no diastolic murmur could be heard; the heart action was forcible. The pulse was normal. Blood pressure readings were 110 systolic and 80 diastolic. The Wassermann test was negative. The blood findings were: hemoglobin, 75 per cent.; red blood cells, 4,600,000 per cubic millimeter.

4. Meredith, F. L.: Functional Heart Disturbances in Women, Boston M. & S. J. **181**: 734 (Dec. 25) 1919.

5. Neuhof, S.: The Irritable Heart in General Practice, Arch. Int. Med. **24**: 51 (July) 1919.

Diagnosis.—This case was diagnosed "double mitral disease," that is, mitral stenosis, because of the symptoms, the pounding heart action, and the suspicion of a presystolic murmur. The whole picture is that of nervousness with the effort syndrome.

COMMENT

The differential diagnosis in young people between heart disease and nervousness, or the so-called "effort syndrome," is in need of great emphasis at the present time. This is particularly true in the case of young women, who are probably more susceptible in civil life to the condition than are young men.

RUPTURED ECTOPIC PREGNANCY IN UTERINE CORNU

AFTER SALPINGECTOMY FOR PREVIOUS TUBAL PREGNANCY *

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REPORT OF CASE

A woman, aged 30, admitted to St. Luke's Hospital in December, 1916, had had a severe abdominal pain about four hours before admission, and had fainted. On admission, she was in shock, and was bathed in cold perspiration; the pulse was almost imperceptible, but could be counted at the apex with the stethoscope, the heart rate being 152 a minute. The abdomen showed a boardlike rigidity. There was a mass in the left fornix, and as the patient had skipped her last menstrual period a diagnosis of ruptured ectopic pregnancy was made. As her condition was becoming worse rather than better, she was operated on without delay.

Hypodermoclysis needles were inserted under both breasts before the administration of nitrous oxid gas. A midline incision was rapidly made. The abdomen was found full of blood. The bleeding ruptured left tube, together with the ovary, was removed. At the same time an assistant was removing a liter of blood from the patient's husband, and this was given to the patient by the citrate method, without waiting for the usual grouping tests, in view of the patient's condition. She made an uneventful recovery.

More than two years later, March 6, 1919, the patient had a similar attack except that the symptoms were not so severe as in the previous attack. By vaginal examination, marked tenderness could be demonstrated in both fornices, and the right ovary could be felt somewhat enlarged. As she was twelve days past her menstrual period, all other periods in the past two years being regular, it was believed that she had a ruptured pregnancy in the remaining right tube.

At operation the abdomen was again found to contain a considerable quantity of blood, with bright red blood coming up from the pelvis. The right tube and ovary were brought up into the wound, and except for a large corpus luteum cyst in the ovary, were found normal. It was then discovered that at the left cornu of the uterus, where the tube had been removed at the operation previously, there was a ragged, raw, bleeding area, which evidently represented a ruptured ectopic pregnancy. No ovum was found, but on the edge of the raw area was a small peritoneal cyst filled with clear fluid and lined with flattened epithelium. An effort was made to introduce a probe through this area, but no communication with the cavity of the uterus could be demonstrated. The raw area was closed by sutures through the uterine tissue.

COMMENT

Ectopic pregnancy occurring in a remaining tube, after salpingectomy in the other side, is not an uncommon occurrence. Rongy,[1] in an article on ectopic gestation based on a study of 100 cases, reported twelve cases of repeated ectopic pregnancies included in this series. He quotes Smith and Rabinowitz, who have made a study of 2,998 cases of ectopic gestation, in which there were 113 cases of recurrent ectopic pregnancy, or 3.8 per cent. In all probability, as suggested in the article mentioned, if the subsequent history of these primary cases could be followed for a sufficient time, this percentage would be larger. This brings up the question of the advisability of the suggestion, that, in a woman, who has borne three or more children, the danger of a repeated ectopic pregnancy be explained to the patient, with the idea of obtaining consent for the resection or ligation of the remaining tube at the time of operation for the ruptured ectopic gestation.

The case reported furnishes an interesting conjecture as to how the impregnation occurred. The first operation was done rapidly, as circumstances required. The tube was tied close to the uterine cornu and removed, no attempt being made to excise a wedge-shaped portion of the uterine cornu. At the second operation, all evidence as to whether a sufficient amount of stump had been left to allow an ostium to become patent again was removed by the rupture that had occurred.

The question remains, How did the fecundated ovum become attached to this point? Did it pass down the right tube and across the cavity of the uterus and attempt to enter the remains of the left tube, and if so should it not have been possible to find a communication with the uterine cavity with the probe? If this did not occur, it must have reached its point of attachment by means of the peritoneal cavity, in which case it is of considerable interest to conjecture where it became fecundated and how or why it became attached to the remaining stump of the resected tube.

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* Read before the Alumni of the Sloane Hospital for Women, Jan. 23, 1920.

1. Rongy, A. J.: Am. J. Obst. 77: 86 (Jan.) 1918.

ACUTE RESPIRATORY DISEASE CARRIERS *

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The prevalence of respiratory infection, especially among young adults, has been the subject of many statistical reports. Vaughan and Palmer [1] have shown that for the six winter months of 1915, 43 per cent. of the deaths occurring in the United States between the ages of 20 and 29 were due to this cause. The interest aroused in the subject was increased on mobilization of our troops during the winter months of 1917 and 1918. Covering a similar period, 77 per cent. of the deaths among the troops of approximately the same age as quoted above resulted from respiratory infection.

In this group it was shown that the organisms which I shall discuss were of great importance. Pneumonia was twelve times more prevalent in the army than in civil life, meningitis forty-five times, and diphtheria two times. Although the etiologic factors of measles and scarlet fever remain unknown, the streptococcus is well known as an organism of importance in the production of dangerous complications and sequelae. The same report states that measles was nineteen and

* Read before the New England Oto-Laryngological Association, Nov. 19, 1919.

1. Vaughan and Palmer: Report from Section of Communicable Diseases, Division of Sanitation, Surgeon-General's Office.

scarlet fever six times more prevalent in the military than in the civil population.

Since the discovery by Pasteur that the pneumococcus could be cultivated from the saliva of healthy persons, various other organisms, the etiologic factors of respiratory infection, have been demonstrated on the normal mucous membrane. The significance of the presence of these bacteria was not realized at first, except to throw doubt on the etiology of certain of these diseases. Later, however, it became well recognized that persons harboring such organisms were factors in the spread of infectious diseases. To such individuals has been applied the term "carriers."

In many instances the organism may be only temporarily present, and in others it may be a constant inhabitant of the respiratory tract. This division of carriers into the transient, and the persistent or chronic groups, will be considered later. The most important classification seems to me to depend on the manner in which the organisms become planted on the mucous membrane of the carrier. It has long been known that the presence of any of these bacteria was no proof of previous infection by that organism. To this group I apply the term the "healthy carrier." Cole has shown that after infection by the pneumococcus, from 12 to 13 per cent. of those infected with Types I and II remain as bearers of those specific cocci. A similar condition follows infection by *Bacillus diphtheriae* and the meningococcus. This group will be referred to as the "diseased carrier." Still another consideration is the virulence of the organism isolated from the carrier. This appears to be of less significance than the latter, since the temporarily avirulent organism may, when implanted on fresh soil, regain its lost virulence.

In this paper I shall consider the four most important organisms that are the etiologic factors of acute respiratory infection. These are the pneumococcus, *Bacillus diphtheriae,* the meningococcus, and the streptococcus.

PNEUMOCOCCUS

Cole,[2] after an intensive study at the Rockefeller Hospital on acute lobar pneumonia, points out that the four types of the pneumococcus may be reclassified according to their occurrence in carriers into two general subdivisions: the truly parasitic and the primarily saprophytic pneumococci. Types I and II fall into the former division, Types III and IV into the latter. He was able to isolate from a series of 297 healthy persons, not exposed to the disease nor giving history of respiratory infection, a member of the parasitic group only once—a percentage of 0.33. On the other hand, the same series showed the saprophytic group [3] in 115 persons, a percentage of 39. Following lobar pneumonia caused by the Type I pneumococcus, on the other hand, he succeeded in recovering that organism late in convalescence in 13.1 per cent., and the Type II organism following that specific infection in 12.1 per cent. It is not to be inferred that Types III and IV are essentially saprophytic organisms, since together I found them as etiologic factors in approximately 63 per cent. of more than 1,300 cases of lobar pneumonia which I studied. The fact remains that of the truly parasitic group which was responsible for 37 per cent. of my cases, the "healthy carrier" was essentially unknown.

In a study of the correlation of the types of pneumococci obtained from the circulating blood and the sputum in lobar pneumonia, I was able to demonstrate certain changes in the respiratory flora which further suggest the separation of the pneumococcus into parasitic and saprophytic groups. In several instances, the types recovered from the sputum in the later stages of the disease changed from the parasitic group, which had earlier been found in both blood and sputum, to the saprophytic group. From this fact it seems at least suggestive that in Types III and IV there are certain harmless strains; while other members, presenting the same serologic reaction, are frequent factors in the production of pneumonia. It is fair to assume that the convalescent pneumonia patient is a far greater source of danger, in regard to the spread of infection, than the healthy person, even though the latter is a bearer of the pneumococcus.

Epidemiologic studies of pneumonia in our large camps during the recent war have shown most interesting outbreaks of the various types of the disease. I was fortunate enough to be able to observe such waves of infection at Camp Devens. In the winter and spring of 1917 and 1918, the infection was caused largely by Type IV. This was followed by an outbreak of Type I, especially among two battalions of negroes who had recently arrived from Florida. This was succeeded by a preponderance of Type II cases, which was again followed by Type IV. During this period the usual sporadic cases were found, showing the classical percentage of types. These waves of infection, or small epidemics, can be explained best by infection from the individual in the early stages of pneumonia or from the diseased carrier during late convalescence.

The presence of the pneumococcus in the sinuses, incident to recent acute or present subacute infection, is doubtless of great importance in connection with the spread of disease; but my experience on the subject is too limited to warrant any conclusion.

BACILLUS DIPHTHERIAE

The Klebs-Loeffler bacillus, like the pneumococcus, has long been recognized as a possible inhabitant of the healthy throat. During a period of ten months, my laboratory at Camp Devens examined 3,800 contacts with cases of diphtheria. On the diagnosis by the laboratory of a case of that disease, all members of the patient's company were brought to the laboratory and cultures made at once on Loeffler's blood serum.

Of the 3,800 persons examined, 140 positive carriers were detected, a percentage of 3.7. In a paper published last year [4] I said:

> The healthy carrier may, according to the experience of this laboratory, be divided into two classes, the transient and the persistent carriers. In the search for diphtheria carriers it was necessary to rely for diagnosis on the microscopic morphology and staining reaction of the organisms and the relative number of such bacilli. Limits of time, personnel and material prevented more elaborate cultural differentiation, animal inoculation, etc. In order to safeguard as far as practicable against error in this report, the following requisites for diagnosis were insisted on:
>
> First, the suspected type of organism must be present in at least moderate number in the preparation; second, the diagnosis must be made independently by three trained members of the staff or personnel.

2. Avery, Chickering, Cole and Dochez: Monograph 7, Rockefeller Institute for Medical Research, 1917.

3. The saprophytic group included, in addition to Types III and IV, the atypical Type II organisms, which Cole has shown are more closely allied to those groups than to the typical Type II.

4. Spooner, L. H.: The Base Hospital Laboratory, Mil. Surgeon 44: 55 (Jan.) 1919.

It seems wise to make this detailed technical statement in order that the results of this investigation may be taken at their proper value.

The daily examination of cultures from the throats of the carriers yielded interesting results. Of the 140, 121, or 86 per cent., showed negative cultures within five days of isolation. To this large group I apply the name "transient carrier." Fourteen, or 10 per cent., showed organisms present between six and fifteen days following isolation. These might be classified as an intermediate group. Five, or 4 per cent., showed cultures positive over a period longer than fifteen days, the actual time being seventeen, twenty-one, sixty-two, seventy-five [5] and eighty-five days, respectively. From these figures it may be concluded that 3.7 per cent. of contacts were found to be carriers, and that of the latter, only 14 per cent. were of practical epidemiologic importance, since the presence of bacilli in the throat of the remaining 86 per cent. was so transient. In other words, only 0.5 per cent. of those examined were significant carriers, harboring bacilli longer than five days, and only 0.1 per cent. were proved to be true chronic carriers. The transient carrier has an added significance in time of epidemic, although his importance in the dissemination of disease is not considerable under ordinary conditions.

The process of disinfection of all but the chronic carrier was too simple to warrant more than passing note. It consisted of rest, fresh air, house diet, and generally no local treatment, although occasionally bland mouth washes and gargles were employed, care being taken that their use did not interfere with the cultural results. The release from quarantine and the negative findings referred to in these statistics were gaged by three negative cultures, from the nose and throat, taken on successive days.

The "diseased carrier," the convalescent from diphtheria, presented a very different laboratory picture. In this case the persistence of positive cultures was always pronounced, and more radical steps, such as tonsillectomy and nasal operations, were often resorted to. These were frequently followed by a disappearance of the organism, which was unfortunately not always permanent. One case in particular deserves a brief note:

> On admission, a soldier presented moderate constitutional symptoms and a small membrane on the left tonsil. Cultures from the latter revealed *B. diphtheriae*. After appropriate serum therapy, the constitutional reaction and the membrane disappeared, but the bacilli remained. Daily cultures from each tonsil, each nostril and the postnasal space showed negative results in every instance, save that of the left tonsil, cultures from which remained positive for from six to eight weeks. At that time the tonsil was removed in the usual manner. During his convalescence from this operation, negative cultures were obtained from all sources. After a week, however, the left tonsillar fossa showed positive cultures, which continued with as much persistence as before the operation. At last the patient was discharged from the hospital on the grounds of the nonvirulence of the organism.

From these observations I conclude that:

1. The chronic healthy diphtheria carrier is very rare.

2. Although the sterilization of his mucous membrane is difficult, it is easier than that of the chronic disease carrier.

3. He and his fellow, suffering from the early stages of acute infection, are the potent factors in the spread of this disease.

5. At the time of preparation of the paper referred to in Note 4, this patient was in the hospital showing positive cultures.

MENINGOCOCCUS

When Weichselbaum identified the meningococcus in the spinal fluid in epidemic cerebrospinal meningitis, it was supposed that the infection was restricted to the meninges. At present it is recognized as a septicemia. The organism gains entrance through the upper respiratory tract, and may be found in the postnasal space of both the healthy carrier and the person sick with the disease.

During the recent war the marked increase in this form of meningitis was the cause of a considerable disquietude in the Office of the Surgeon-General. As a natural consequence, the search for meningococcus carriers was carried out in a most elaborate and painstaking manner on all disease contacts. My experience revealed a low percentage of healthy carriers, 1.3 per cent. of 3,647 being detected, although the percentage of a limited group ran to 6.9 per cent. of 116 who had been in most intimate contact with infected subjects. It is, of course, impossible to state whether these carriers were responsible for the infection, or whether, as seems more likely, they became carriers because of close exposure to the disease.

In the South this form of meningitis is more prevalent than in this latitude. As Vaughan and Palmer have shown that the soil from which troops were drawn governs the prevalence of infectious disease, it follows that the Southern camps presented a high meningitis morbidity. At the same time the percentage of healthy carriers detected in those cantonments was correspondingly high. Here again it is difficult to assign any epidemiologic significance to the carrier.

We are confronted with a problem, which, technical though it may be, has a marked bearing on the interpretation of all results on this work. The cultivation of the meningococcus is difficult even from spinal fluid, but this difficulty is greatly increased when the organism is mixed with the usual saprophytic bacteria of the postnasal space. This tends to reduce the number of positive findings. On the other hand, it often rendered necessary the diagnosis of carriers from a relatively small number of organisms. The inevitable result is the diagnosis as carriers of many who harbor what might reasonably be considered an insignificant number of meningococci. This point is strengthened by a consideration of the response to treatment.

The usual method of disinfection was through the use of postnasal sprays of dichloramin-T. In the case of all our healthy carriers, the results of this treatment were most striking. The regulation for release consisted of three consecutive negative cultures taken at three-day intervals. In the case of the healthy carrier, the maximum period of isolation was twelve days.[6]

As I have stated above, the clinical meningitis patient is also a carrier of the organism in the postnasal space during the disease and convalescence. These diseased carriers were disinfected with greater difficulty. The maximum period of isolation was forty-three days.

The group of chronic healthy carriers, as in the case of diphtheria, is a small one. None typical of this type were detected among 3,647 contacts. They present two

6. This excluded one carrier whose isolation lasted seventeen days. He should be classified in an intermediate group, since the original examination revealed an almost pure culture of the meningococcus. The latter characteristic belongs to the chronic type, although the period of isolation prevents him from being classified as such.

characteristics which differentiate them from the type that was identified in my laboratory. They harbor the meningococcus in almost pure culture, and defy the utmost measures of disinfection. I observed such a group, consisting of perhaps a dozen men drawn from our entire army, when visiting the Rockefeller Hospital in May, 1918. From these observations it seems fair to conclude that the chronic healthy carrier of the meningococcus is rare, and that the important bearer of infection is the diseased carrier.

During the epidemic of influenza which swept Camp Devens during the latter part of September and October, 1918, a peculiar outbreak of epidemic cerebrospinal meningitis took place. In less than four weeks, twenty-two cases of this disease had developed in a camp that had shown only twenty cases during the ten months from October, 1917, to August, 1918. The most striking element in this outbreak lay in the fact that fourteen of the twenty-two patients (64 per cent.) had been confined in the hospital with influenza five days or more prior to manifestation of the earliest symptoms of meningitis. Twelve (55 per cent.) had been patients for nine days or more before onset of this infection.

The following facts were brought out after an intensive study of the situation: The twenty-two cases represented eighteen separate camp organizations, which were in no way in close contact with one another. In spite of the crowded condition of the camp, in only three instances did multiple infection exist. In none of these could camp contact be satisfactorily demonstrated to an extent warranting any epidemiologic conclusions.

Two cases arose in A Company, 212th Engineers; of these one had been in the hospital ten and the second thirteen days prior to manifestation of symptoms. Of the two cases in the 31st Company, Depot Brigade, one had been confined to the hospital five, the second, twenty-three days. In the 14th Company, Depot Brigade, in which three cases developed, one was admitted sick with the disease; the second had been confined for nine, and the third for thirteen days. A comparison between the dates of manifestation of symptoms and of admission to the hospital shows that in the case of only one organization—the 212th Engineers—could the patients have been in personal contact within at least one week prior to onset of symptoms.

A study of the distribution of cases throughout the hospital shows that among those who evidently had developed the disease within the hospital, no two cases were found in the same ward. The frequent change of patients from ward to ward during the stress of the epidemic did not alter this unique record. Of the medical staff, hospital personnel, and nurses in those sixteen wards, as well as of the patients in contact with the case, cultures were taken with the utmost care. Of 586 contacts only twelve, or 2 per cent., were found to be healthy carriers. Similar cultures taken from the possible camp contacts showed nineteen carriers out of 1,061 examined, a percentage of 1.8. It is of interest to note that in the 14th Company, Depot Brigade, to which organization three patients belonged, no carriers were discovered among 219 examined.

Since no appreciable increase in the number of carriers was found among hospital contacts and in the organizations to which these cases belonged, and in fact since in the one to which were attached the largest number, none were discovered; and as there was a wide distribution of cases through the camp as well as in the hospital, and such a large number developed the disease in the hospital after a lapse of time generally accepted as the incubation period of meningitis, it seems reasonable to consider these cases as possible autoinfections of the carrier. Although no absolute proof of this point has been produced, it seems rational to consider that these persons, whose vitality had been lowered by an attack of influenza, yielded in this manner to infection with the meningococcus. I will add that I have the informal statement from the Office of the Surgeon-General that such an outbreak took place in three other base hospitals in this country.

STREPTOCOCCUS

In civil life the streptococcus is an important factor in the production of septic sore throat, septicemia and more localized surgical infections. Its rôle in connection with pneumonia should not be neglected. In the army, however, it was found to be one of the most dreaded of infectious organisms. Bronchopneumonia either due to the streptococcus in the form of primary infection, or secondary to measles, with the resulting empyema and pericarditis, was responsible for the highest mortality in Southern camps. Primary and secondary infection of wounds by this organism was also of utmost importance.

The regional distribution of the streptococcus was fully as striking as in the case of the meningococcus.

Although many strains of the organism have been isolated, *Streptococcus hemolyticus* was almost universally found in connection with respiratory, as well as with wound, infection.

In the spring of 1918, a considerable number of cases of postmeasles streptococcus pneumonia were reported through my laboratory. This organism was also frequently demonstrated in postpneumonic empyema during that period and throughout the summer. Following the influenza epidemic, even larger proportions of the postpneumonic empyemas showed this organism, always in the rôle of a secondary invader. Toward the close of 1918, in a few returned wounded soldiers the organism was demonstrated in chronic sinuses and areas of bone destruction. With these exceptions, infection by *Streptococcus hemolyticus* was relatively rare throughout Camp Devens during the first fifteen months of its existence.

This preliminary statement is of importance in the consideration of my investigation on suspected carriers of this organism, which, it must be borne in mind, was terminated before the influenza epidemic or the return of wounded troops, noted above.

During the winter of 1917-1918, cultures were taken of 100 Medical Reserve Corps officers stationed at the base hospital. Cotton swabs were applied to the tonsils, and with this material the water of condensation of Loeffler's blood serum was impregnated. Diagnosis was made by microscopic morphology. In this series, 60 per cent. were found to be streptococcus carriers. A similar investigation on the nurses at the same hospital revealed 68 per cent. of sixty examined. A smaller group of regimental surgeons stationed throughout the camp was next investigated by the same methods. These showed only 5 per cent. of healthy carriers. Whether the marked difference resulted from the nature of the lives led by these groups, or whether

the hospital environment played a rôle in the production of carriers, it is difficult to decide. The former seems to me the more rational solution.

As it was realized that the technic was faulty, the next series was thus investigated: Swabs were planted directly on blood agar plates,[7] and after twenty-four hours' incubation the microscopic morphology of typical hemolytic colonies was studied. This series covered 140 officers, about 75 per cent. of whom were included in the first investigation. The same process was repeated twice at three to four week intervals. The migratory life of the army officer prevented the completion of observation in all the group. This incompleteness tended to lower the percentage, which I believe would have been even more striking had the work been performed on a stationary body.

Of 140 officers of whom cultures were taken, 83 per cent. were positive on at least one examination; 25 per cent. showed *Streptococcus hemolyticus* in appreciable numbers on three or more trials, and only 17 per cent. were consistently negative. These figures indicate that the transient streptococcus carrier is very common and that the persistent carrier—I believe had my investigation been carried out over a longer period the term chronic carrier would have been appropriate—is also common.

When these facts are considered in the light of the scarcity of primary streptococcus disease at this hospital and the absence during their entire residence at that post of such infection among the Medical Corps officers, the importance of the streptococcus carrier, as an etiologic factor in the origin and spread of that infection, becomes parallel to that of the pneumococcus carrier. Another analogy to that organism lies in the recent work on streptococcus grouping, which will probably separate these organisms into parasitic and saprophytic groups similar to those of the pneumococcus.

It is my opinion that in the case of the streptococcus, healthy and diseased carriers bear the same relation to the health of the community as exists with the other organisms just discussed.

CONCLUSIONS

1. Acute respiratory disease is at present the greatest menace to the youth of our country.

2. It is more serious in the army than in civil life.

3. The transient healthy carrier is more common than should be expected from the incidence of the specific disease.

4. This transient quality is shown by the disappearance of the organism without treatment.

5. The chronic healthy carrier is rare, except in the case of the "saprophytic pneumococcus" of Cole, in which many of the organisms may be nonpathogenic, and with *Streptococcus hemolyticus,* in which a similar condition may well exist.

6. The potent factors in the spread of these diseases rest in this small group of chronic healthy carriers and the diseased carrier.

7. The latter, during the prodromal stages of disease and convalescence, is of by far the greatest importance.

8. They respond to attempts at disinfection even less satisfactorily than do the chronic healthy carriers.

520 Commonwealth Avenue.

7. To meat infusion agar is added 10 per cent. sterile defibrinated human blood, and the mixture plated.

ELECTRICAL STIMULATION OF PERIPHERAL NERVES EXPOSED AT OPERATION

SURGICAL VALUE

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The occurrence during the war of large numbers of nerve lesions of traumatic origin has stimulated the investigation of nerve function by various methods, among which that of electrical stimulation is of recognized importance. Operations for the correction of these lesions have furnished the opportunity for the direct stimulation of exposed nerve trunks, pathologic and normal, by which means extremely important information may be gained. This paper is based on such observations in a series of seventy-three cases in which operation was performed in the service of Lieut.-Col. C. H. Frazier at U. S. Army General Hospital No. 11, Cape May, N. J., and U. S. Army General Hospital No. 41, Fox Hills, N. Y., and aims at presenting general conclusions and such other data as may be of interest to the surgeon. The case reports, with more detailed anatomic and theoretical consideration, will be embodied in another paper.

TECHNIC

As soon as nerves are freed at operation, those of the leg are oriented at a point distal to the lesion by a black silk thread passed through the sheath on their posterior aspect, and proximal to the lesion by a white thread similarly placed. The arm nerves are oriented in the same way on the anterior aspect. This permits proper orientation for stimulation, suture and pathologic examination.

The stimulating electrode (Fig. 1) used was bipolar and was devised by one of us (W. M. K.) following the principle of the French investigator, Henri Meige. It is rather simple. Two strands of No. 2 copper wire about 2 yards long are strung with small glass beads for insulation. The two strings of beads are placed in a glass tube, 8 inches long, whose edges are well rounded, and are held in position by nonvulcanized rubber. Another modification of the electrode is as follows: At a point, about 1½ inches from the handle end of the tube, a slight indenture is made by drawing the tube out a bit. The beaded wires are drawn toward the stimulating end and a rubber band is placed over them at the indenture, thus holding them in place. The beaded wires are then allowed to trail off in their original direction (Fig. 1). The stimulating ends of the electrode are twisted back on themselves, thus making a loop. This avoids trauma to the nerves. This electrode may be readily sterilized. The battery used was the Harvard inductorium, No. 20, made by the Harvard Inductorium Company, Boston (Fig. 2). The freed nerve is held by a glass rod with a curved end which permits it to rest as in a cradle. The strength of the current is best taken as that which will produce a minimal contraction in a neighboring muscle. This rarely fails to cause stimulation of the nerve. The stimulation should always be applied both below and above the lesion. Normal nerves require much less current than abnormal. The stimulating is done with

the electrodes placed longitudinally on the nerve—this to avoid diffusion as much as possible. The sequence is: posterior side, internal, anterior, external. The surgeon while stimulating calls out the aspect of the nerve he is working on, in order to avoid confusion. The muscles stimulated are observed by another man. In stimulating the arm nerves it is better to use the terms radial and ulnar than internal and external. It has been found valuable to have nerve maps in the operating room for reference. The findings are directly recorded on circular charts.

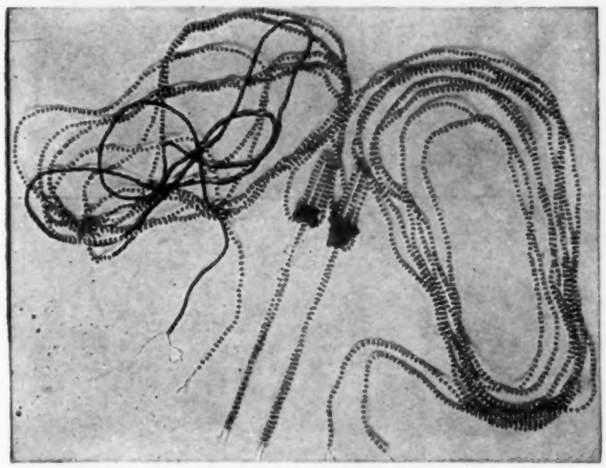

Fig. 1.—Stimulating electrode.

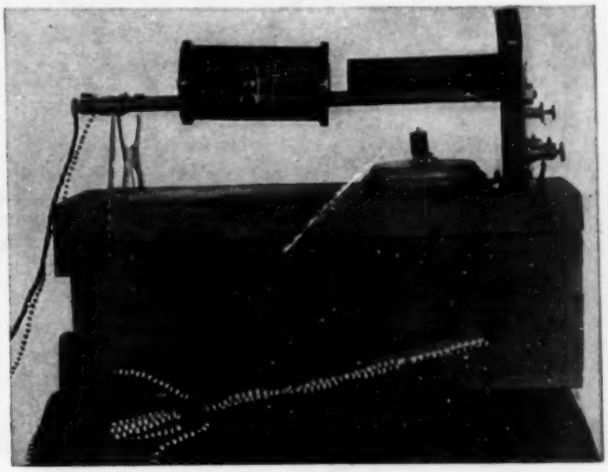

Fig. 2.—Battery.

VALUE OF THE METHOD TO THE SURGEON

The surgical aspects of this subject are of considerable importance, not only because of the increased accuracy of diagnosis and of surgical manipulation which a better knowledge of topography insures, but also because direct electrical stimulation of nerves exposed at operation is of material aid to the surgeon in estimating the degree of nerve injury and in facilitating operative procedure. It enables him easily and quickly to identify normal nerves, often a difficult matter otherwise, especially when the normal anatomic relations are disturbed by pathologic conditions. Again, direct electrical stimulation is the most dependable means of determining conductivity in motor nerves which have been injured but not interrupted, as in the case of compression.

ELECTRIC PHENOMENA

We are all familiar with the paradoxical phenomenon of Erb, most frequently found in compression palsy of the musculospiral nerve from the use of crutches. In this condition the nerve conducts impulses when it is stimulated through the skin below the area of compression, but this area acts as an area of decrement, and its muscles cannot be made to react when the nerve is stimulated through the skin above the point of compression. We have found that in some cases the nerve

NUMBER OF REACTIONS IN NERVES AND MUSCLES IN FIFTY-SIX OPERATIVE CASES

	Case Numbers	Nerve	Muscles and Sensations	Total
1. Brachial plexus	5, 41	5		
1. Pectoralis major	.....	.....	1	
				1
II. Median nerve:				
(a) Inner head	31	1		
(b) Outer head	11, 31	2		
(c) Trunk	2, 3, 9, 13, 16, 17, 19, 26, 27, 30, 36, 43, 44, 45, 50, 53, 57, 69	18		
1. Pronator radii teres	.....	.....	14	
2. Flexor carpi radialis	.....	.....	12	
3. Palmaris longus	.....	.....	3	
4. Flexors of the fingers	.....	.....	11	
5. Flexor longus pollicis	.....	.....	7	
6. Pronator quadratus	.....	.....	2	
7. Abductor pollicis	.....	.....	2	
8. Opponens pollicis	.....	.....	1	
9. Lumbricales	.....	.....	1	
10. Sensory	.....	.....	1	
				54
III. Ulnar nerve	3, 8, 11, 13, 16, 18, 27, 28, 42, 43, 45, 49, 50, 60, 66	16		
1. Flexor carpi ulnaris	.....	.....	11	
2. Flexor profundus digitorum	.....	.....	10	
3. Adductor pollicis	.....	.....	5	
4. Interossei	.....	.....	5	
5. Hypothenars	.....	.....	4	
6. Sensory	.....	.....	1	
				36
IV. Circumflex nerve	39	1		
1. Deltoid	.....	.....	2	
				2
V. Musculospiral nerve	15, 22, 31, 33	4		
1. Triceps	.....	.....	4	
2. Supinator longus	.....	.....	2	
3. Extensor carpi radialis	.....	.....	2	
4. Extensors of the fingers	.....	.....	1	
				9
VI. Sciatic nerve:	.....			
(a) Internal popliteal division	12, 20, 23, 24, 63, 64	6		
1. Hamstrings	.....	.....	4	
2. Gastrocnemius	.....	.....	3	
3. Tibialis posticus	.....	.....	2	
4. Flexor longus digitorum	.....	.....	2	
5. Flexor longus hallucis	.....	.....	2	
6. Intrinsics	.....	.....	0	
				13
(b) External popliteal division	14, 21, 59	3		
1. Peronei	.....	.....	3	
2. Tibialis anticus	.....	.....	2	
3. Extensor digitorum	.....	.....	1	
4. Extensor hallucis	.....	.....	1	
				7
VII. Internal popliteal nerve	1, 6, 7, 10, 40, 51, 52, 54, 56, 58, 63, 64, 68	13		
1. Hamstrings	.....	.....	2	
2. Gastrocnemius and soleus	.....	.....	9	
3. Tibialis posticus	.....	.....	10	
4. Flexor longus digitorum	.....	.....	5	
5. Flexor longus hallucis	.....	.....	4	
6. Intrinsics	.....	.....	2	
				32
VIII. External popliteal nerve	10, 14, 38, 46	4		
1. Peronei	.....	.....	4	
2. Tibialis anticus	.....	.....	1	
3. Extensor digitorum	.....	.....	1	
4. Extensor hallucis	.....	.....	1	
				7
Total	.....	73	.....	161

and its muscles are quite unresponsive to electrical stimulation at all points through the skin, while direct stimulation of the nerve trunk at operation causes muscle reaction. We have also observed all of the conditions of Erb's reaction elicited by direct stimulation of the exposed nerve.

3. A phenomenon of difference between percutaneous and direct stimulation.

The explanation of the last mentioned phenomenon appears to be simple. The direct stimulation of an exposed nerve is stronger and less diffused, and suffices to overcome the decrement in conduction produced by the lesion, while stimulation through the skin does not.

The surgical importance of these reactions is obvious. Where conductivity can be demonstrated, nerves or portions of nerves can be conserved which might otherwise be considered as completely interrupted and consequently subjected to unnecessary operative resection

Fig. 3.—Heads of the median nerve: *A*, external (6 and 7); pronator radii teres; *B*, internal (8 and 1): 1, flexor carpi radialis; 2, flexion of the fingers; 3, flexion of the thumb; 4, abductor pollicis.

Fig. 4.—Median nerve, midarm level: 1, pronator radii teres; 2, flexor carpi radialis; 3, palmaris longus; 4, flexores digitorum; 5, flexor pollicis; 6, pronator quadratus.

Fig. 5.—Median nerve, midforearm level; 1, sensory; 2, opponens pollicis; 3, abductor pollicis; 4, lumbricales.

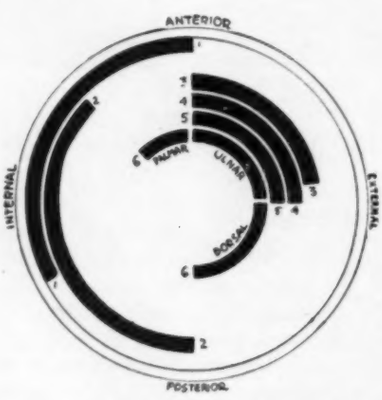

Fig. 6.—Ulnar nerve: 1, flexor carpi ulnaris; 2, flexor profundus digitorum; 3, hypothenars; 4, interossei; 5, adductor pollicis; 6, sensory.

Fig. 7.—Musculospiral nerve: 1, triceps; 2, supinator longus; 3, extensor carpi radialis.

Fig. 8.—Sciatic nerve: 1, hamstrings; 2, gastrocnemius and soleus; 3, flexor longus hallucis; 4, flexor longus digitorum; 5, tibialis posticus; 6, peronei; 7, tibialis anticus; 3, extensors of the toes.

Fig. 9.—Internal popliteal nerve: 1, hamstrings; 2, gastrocnemius; 3, tibialis posticus; 4, flexor longus digitorum; 5, flexor longus hallucis; 6, intrinsics; 7, flexor brevis hallucis.

Fig. 10.—External popliteal nerves; 1, peronei; 2, tibialis anticus; 3, extensors of the toes.

Summarizing the phenomena due to areas of decrement which we observed, we have:

1. Erb's indirect, or percutaneous, paradoxical phenomenon.

2. A direct paradoxical phenomenon, from stimulation of the nerve trunk.

and suture. Finally, the free ends of nerves that have been completely interrupted can be identified in the recent stage of injury, that is, until secondary degeneration develops. In cases in which it is of interest to cut the fibers to some muscles, let us say the gastrocnemius and soleus group, as in Little's disease, or when a transplantation is desired, say of the triceps fibers into the circumflex nerve, it is essential to use electrodes.

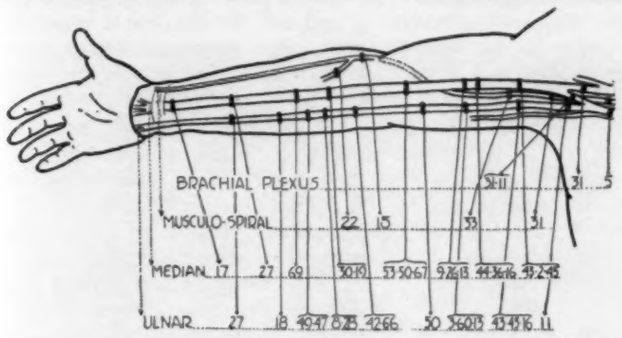

Fig. 11.—Levels of stimulation of the main arm nerves and their branches.

RESULTS OF STIMULATION IN SEVENTY-THREE CASES

The results obtained have been combined for each nerve and are represented on the accompanying charts (Figs. 3, 4, 5, 6, 7, 8, 9 and 10). The black areas represent the responsive area on the circumference of the nerve, namely, the area in which faradization caused muscle contraction. The arrow in Figure 4 indicates that the fibers to the pronator radii teres muscle cross from the external aspect to the internal aspect of the median nerve on its anterior surface, the extent of the crossing being several inches in the midarm portion of the nerve. The absence of a black line to represent the position of the fibers for the tibialis posticus in Figure 9, and the location of the numbers throughout the circumference, indicate that we were unable to localize definitely the fibers to this muscle, but found them on all aspects of the nerve in different cases. This was the only exception to the rule that the fibers to a given muscle pursued a straight course from the plexus to the point of branching. The charts of the circumferential position of various bundles represent the results of stimulation at various levels (Figs. 11 and 12).

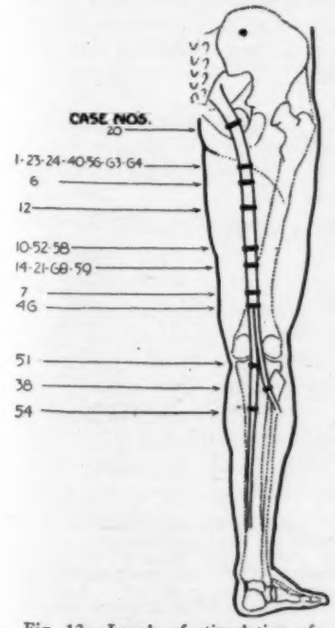

Fig. 12.—Levels of stimulation of the sciatic nerve and its branches.

CONCLUSION

Electrical stimulation at operation gives important information to the surgeon as to the location of nerves and their degree of abnormality due to injury. It serves as an indispensable guide to operative manipulations.

It is a means by which we may add to our all too scanty knowledge of peripheral nerve anatomy.

RESTORATION OF LOSS OF BONE

INCLUDING AN ANALYSIS OF THE FIRST HUNDRED CASES OF FRACTURE TREATED BY BONE GRAFT AT U. S. ARMY GENERAL HOSPITAL NO. 3, COLONIA, N. J.*

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In the task of restoring loss of bone substance and function in the wide variety of traumatisms resulting from the war, the plastic surgeon is confronted with a correspondingly varied array of mechanical problems. The recognition of the underlying biologic and physiologic significance of tissue growth and metabolism is a fundamental requirement in the successful treatment

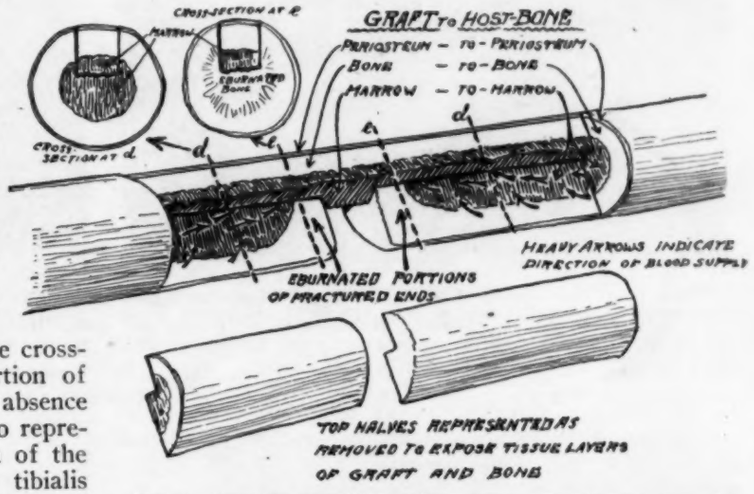
GRAFT TO HOST-BONE
PERIOSTEUM — TO-PERIOSTEUM
BONE — TO-BONE
MARROW — TO-MARROW
CROSS-SECTION AT E
CROSS-SECTION AT d
ECBURNATED BONE
HEAVY ARROWS INDICATE DIRECTION OF BLOOD SUPPLY
ECBURNATED PORTIONS OF FRACTURED ENDS
TOP HALVES REPRESENTED AS REMOVED TO EXPOSE TISSUE LAYERS OF GRAFT AND BONE

Fig. 1.—Requisite apposition of bone layers of graft with respective parts of host bone. The graft is of sufficient length to extend well beyond the eburnated area of the host fragments, coming into generous contact with the healthy vascular marrow substance. The cross-section at *E* shows the eburnated plug of bone where, as a rule in pseudarthrosis, it closes the marrow cavity in the fractured ends. Here the gutter has been deepened sufficiently to receive the full amount of marrow of the graft, which is demonstrated (lower drawing and cross-section at *D*) in extensive contact with the marrow of the host fragments. The arrows on the marrow in the host fragments indicate the direction of blood supply to the graft from its principal normal source, namely, the marrow substance of the host. By the insertion of the inlay, with its full amount of marrow, a continuous marrow bridge is formed, extending from the healthy marrow of both host fragments through the gutter in the eburnated ends. This marrow bridge plays a most important rôle as conductor of blood vessels and osteogenic cells from one host fragment to the other. The cross-sections at *D* and *E* show also the cabinet-maker fit of the inlay graft with the host fragments, which not only affords mechanical fixation of parts, but also favors the stimulus to bone growth from frictional irritation, emphasized by Roux.

of these cases. The surgical repair of bone, and more particularly the use of the bone graft in cases of pseudarthrosis with or without bone loss, is based not only on the ultimate establishment of adequate fixation of the bone fragments, but also on the attainment of a proper environment for the nourishment of the graft. This entails the exact coaptation of parts of the graft to respective parts of the host bone; in other words, the adequate and extensive contact of all four corresponding bone layers, namely, periosteum, cortex, endosteum and marrow.

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MECHANICAL STRESS AND BONE GROWTH

Throughout his plastic work, both in civilian practice and army experience, the author has been greatly impressed with the striking influence exerted by mechanical stress on the growth and metabolism of bone. In cases of loss of substance of long duration,

Fig. 2 (Case 1).—Wound in which an officer, hit at Ourcq River by fragments of a high explosive shell, lost about 3½ inches of the upper third of the humerus, including the entire head. In this case, destruction of practically all the musculature of the shoulder rendered the patient incapable of shoulder motion.

in the radius, humerus or any long bone, the bone cortex has often become reduced to one-fifth its normal thickness, in fact, almost to eggshell consistency, largely owing to removal of the stimulus of mechanical stress. Such a condition is, of course, in direct sequence to the general physiologic law of bone growth; it is, in fact, a magnification of Wolff's law. If bone, whose nourishment and blood supply have not been greatly impaired, should suffer so materially as a result of loss of the stimulus of mechanical stress, how much greater must be the effect of the same inhibitory influences on any free bone graft whose blood supply and nourishment are not yet established.

A more suitable environment for successful bone growth is established by the cabinet-maker fit of the properly inserted inlay graft than by any other known technic. At the same time the biologic laws that obtain in the transplantation of all varieties of tissues are fulfilled, since corresponding tissue-layers are brought in apposition, thereby furnishing ideal conditions for the rapid and complete establishment of the blood supply. Under such conditions, Wolff's law of bone growth is given favorable opportunity to exert its influence on bone proliferation and on the adequate adjustment of the bone architecture. Moreover, by the inlay technic, the full influence of Roux's law of frictional irritation is ideally provided for, since extensive plane surfaces of the graft are brought into the closest proximity with equally extensive plane surfaces of the host fragments.

TECHNIC

In work on bone tissues, which easily dry on exposure to the air, operative speed is necessary; moreover, in the repair of bone that from lack of the stimulus afforded by mechanical stress has become almost eggshell-like in consistency, great delicacy of technic and operative speed are fundamental requirements in the difficult work of inserting the necessary inlay. It would be impossible to execute such accurate inlay technic by the former laborious methods with mallet and chisel, or osteotome. In work of this nature, in which the operating field is frequently limited, where fragility of bone may be a constant menace to success, and in which an accurate cabinet-maker fit of parts is indispensable, an electrically driven rotary twin-saw seems absolutely essential. In contradiction to a recent assertion, it is emphatically stated that the motor-saw, when properly used, does not heat nor glaze the bone. During various operations in the past few months, the author has made repeated attempts to determine whether heat was generated by the motor-saw when used properly, and if so, to what degree. In every instance it has been found that the most delicately adjusted thermometers have failed to register an increase in temperature, even to the fraction of a degree, when placed directly on the motor-saw or on the bone immediately following the withdrawal of the instrument.

Methods of Internal Fixation.—For the inlay graft, accurately cut and fitted by motor-saw technic, the fixation afforded by kangaroo sutures is adequate and preferable to that of all metal agents (such as plates, nails, screws or wire). Kangaroo tendon, from the standpoint of mechanical strength, absorbability and tolerance by the tissues, surpasses all known fixation agents. It remains in situ sufficiently long for the purpose of fixation, and begins to be absorbed within forty days. Moreover, it is sufficiently elastic to allow the plane surfaces of an inlay graft to rub in a microscopic amount on the contiguous plane surfaces of the gutter of the host fragments, thus favoring the frictional irritation law of Roux.

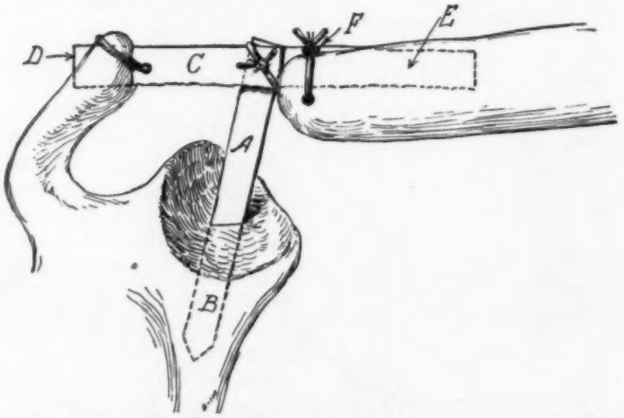

Fig. 3 (Case 1).—Diagrammatic drawing (anterior view) to show the trusswork of tibial grafts in position and fixed with kangaroo tendon. Graft *C* is inlaid into the shaft of the humeral fragment at *E*, and mortised into the acromion process at *D*. Graft *A* is mortised into the glenoid body of the scapula at *B*, and attached by means of kangaroo tendon to Graft *C* at the point where the latter graft meets the end of the humeral fragment.

The practice of inserting metal plates (as recommended by some surgeons) is absolutely contraindicated in this work. The use of metal plates as the internal fixation agent not only robs the graft of mechanical stress, but an influence is thereby added

that contributes strongly toward the stirring up of old infections, if such remain in the tissues. Whereas, in tissues retaining only a slight amount of an original infection, a bone-graft operation speedily done with minimum trauma may bring satisfactory results, the introduction of a foreign body (such as a metal plate,

Fig. 4 (Case 1).—The plastic operation in this case was performed four and one-half months after the patient was wounded and two months after the wound had healed. The roentgenogram demonstrates restoration of loss of bone by two tibial grafts, eight weeks after operation. Graft 1 was inlaid into the shaft of the humerus and mortised into the acromion process. Graft 2 was mortised into the glenoid body of the scapula and contacted with Graft 1 at the point where that graft met the humerus. During the union of the grafts the arm was held by a plaster-of-Paris shoulder spica in an elevated anterior posture and in such relation to the scapula that the powerful thoracic muscles controlling this bone might later move it and in a large measure restore its loss of function by causing the scapulothoracic motion to be compensatory for loss of shoulder motion.

nails or screws) adds a second devitalizing element, which, in the battle of tissues, may turn the scales unfavorably, with the result that infection again breaks out.

ANALYSIS OF CASES

A careful analysis of the first 100 cases of fracture treated by bone graft at U. S. Army General Hospital No. 3 during the period from July 15, 1918, to May 1, 1919, has yielded, it is believed, valuable data in regard to possibilities of treatment.

Of the 100 cases, seventy-nine involved bones in which injury resulted from high explosive shell, machine gun bullet, or shrapnel; seventeen were simple fractures of the long bones; the remaining four cases were compression fractures of the spinal vertebrae. All the simple fractures and the spine cases have been successfully treated, in that they have healed, in each instance, without infection, and have shown bone growth by roentgenographic examination within a reasonable period after transplantation of the graft. In every case of fracture of the long bones, function has been restored, while in the spine cases there has been an inhibition of symptoms.

Of the seventy-nine cases of fracture by projectiles, treated by bone graft, sixty-five, or 82 per cent., were for loss of substance varying in amount from one-half inch to six inches, and averaging about two inches; ten cases were for nonunion without loss of bone; the remaining four cases were for malunion. These cases are classified anatomically in Table 1.

TABLE 1.—SEVENTY-NINE CASES OF FRACTURE TREATED BY BONE GRAFT, GROUPED ACCORDING TO THE BONES INJURED

Site of Injury	No. of Cases
Radius	23
Ulna	17
Radius and ulna	4
Humerus	12
Humerus and ulna	2
Metacarpal	3
Mandible	1
Total cases, head and upper extremities	62
Tibia	12
Femur	4
Patella	1
Total cases, lower extremities	17
Total number of cases considered	79

SPECIAL METHODS

Some of the various methods of plastic repair employed in this series of fractures, more than four fifths of which involved loss of bone, are briefly described in the following groups of cases:

Restoration of Loss of Bone at Shoulder.—Owing to the exposure of the upper portion of the body in trench warfare, shoulder injuries, and particularly those involving the upper part of the humerus, have been frequent in the recent war. Through the rather extensive practice of certain surgeons at the front, more especially of the French, of removing large portions of bone at or near the shoulder-joint in such injuries as these, there has resulted a notable group of cases in which shoulder function is very nearly negligible, if not entirely destroyed, on account of the loss of bony framework over which the shoulder muscles might play. Of all surgical conditions, none pre-

Fig. 5 (Case 1).—Type of brace applied after removal of the plaster spica. This brace is so adjusted as to allow the arm to descend to a lower position than that maintained during the union of the grafts to scapula and humerus. This new position brings a slight amount of lateral stress on the grafts, thus stimulating their hypertrophy and development. It is obvious that this new posture causes the lower angle of the scapula to separate itself from the thoracic cage.

sents a picture of greater helplessness than a dangling arm from which the upper portion of the humerus is missing.

The high frequency of shoulder and forearm injuries is strikingly borne out in Table 1. In this series of seventy-nine cases of fracture by war projectiles, injury to bones of the upper extremities, as compared with those of the lower, has occurred in a ratio of nearly 4 to 1. Of the total number of cases of injury in the upper extremity, the humerus has been involved in fourteen instances, or more than 25 per cent. Cases of loss of substance in the humerus with loss of shoulder function have been classified in two groups, with respect to treatment:

Group 1. Restoration of Shoulder Motion and Function: This class consists of cases in which the humerus has been destroyed, but the musculature has been sufficiently preserved to enable the surgeon to hope for a return of shoulder-joint motion and function, provided the bone be replaced. The author has restored motion and function in such cases by transplanting into the humeral fragment the head and upper end of the fibula to replace the upper portion of the humerus that has been destroyed. He has resorted to this operation many times in his civil practice, as well as in military work, and has invariably found that the patient can functionate satisfactorily without the upper end of the fibula. In these cases, whenever possible, the principal muscles of the shoulder, such as the pectoralis major, the supraspinatus and the subscapularis, are firmly affixed subperiosteally to the transplanted head and neck of the fibula.

Group 2. Shoulder Function Restored by Compensatory Scapulothoracic Motion (Figs. 2, 3, 4 and 5): This group includes cases in which, in addition to loss of bone, the musculature of the shoulder has been destroyed or severely injured to such a degree that one cannot hope to secure a return of shoulder-joint motion. In these cases, the loss of bone is restored by ankylosing the humerus to the scapula by a truss-work of tibial grafts, usually two in number. During the union of the grafts, the arm is immobilized in an elevated anterior posture, and is held in such relation to the scapula that the powerful scapulothoracic muscles which control this bone may later move it. Thus, by causing the scapulothoracic motion to compensate for loss of shoulder motion of the arm, the lost motion of the arm and the shoulder is restored to a surprising degree.

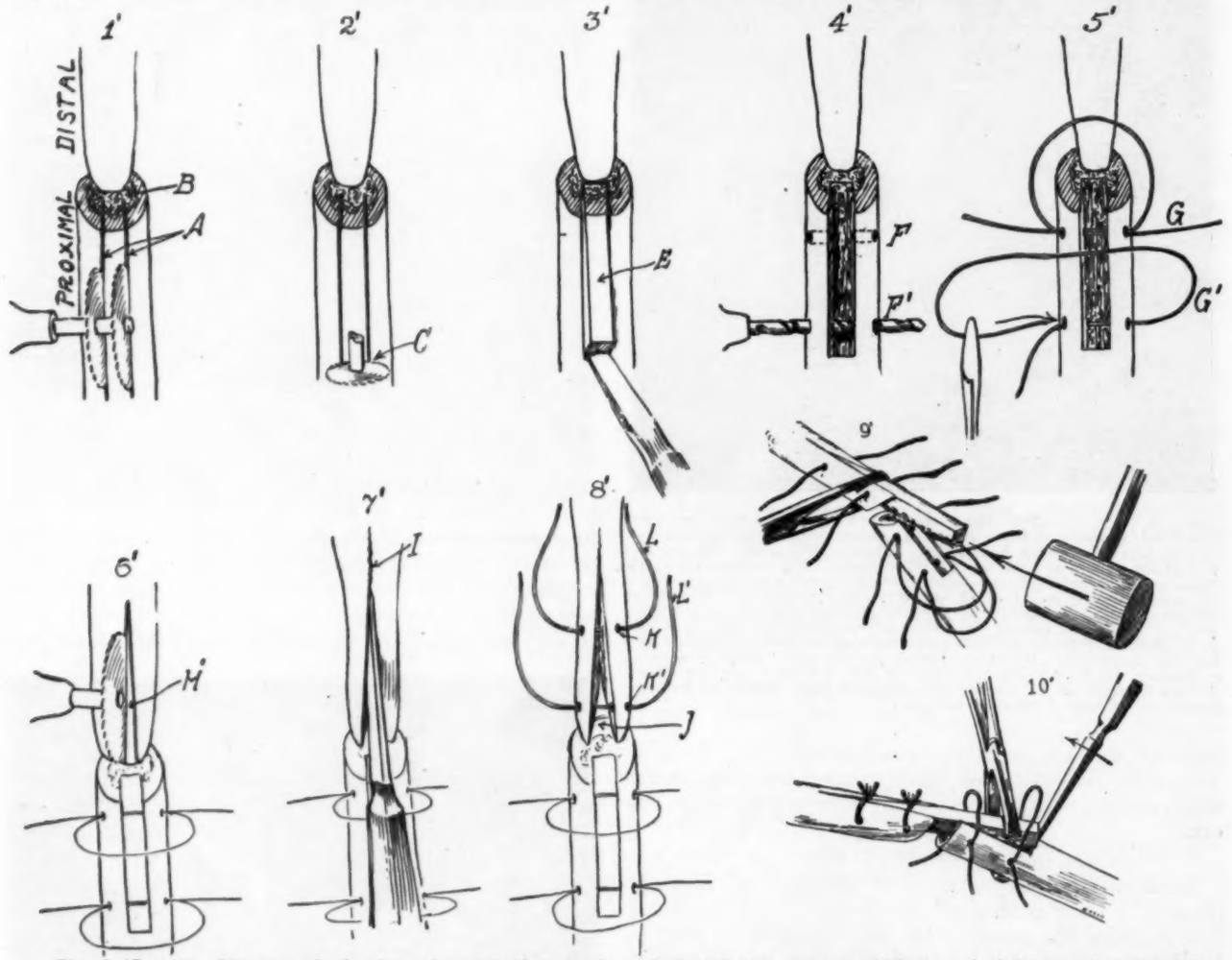

Fig. 6 (Case 4).—Diagrammatic drawings 1' to 10' illustrate the author's technic in cases in which the end of the bone fragment (distal or upper fragment in this case) is conical in shape and too small in diameter to receive the usual inlay graft which is shown in the proximal, or lower, fragment in these drawings. A wedge-shaped piece of cortex, *H*, is removed from the upper fragment. A split at the end of the wedge cavity may, or may not, be made by means of a thin osteotome, as shown at *I*. If the fragment is small in diameter and osteoporotic, as is usual in these cases, the bone may be bent on both sides of the cavity in the region of *I*, and the wedge cavity may be enlarged by driving a wedge-ended graft of larger diameter into it, as demonstrated in Step 9'. In Step 10', the wedge end of the graft is firmly immobilized in the distal or upper fragment by means of kangaroo tendon. The other end of the graft is then forced into the proximal fragment by means of a strong clamp at the same time that the graft is being levered endwise by means of a narrow osteotome, the object of this procedure being twofold; first, to restore as far as possible the length of the ulna, and secondly, to bring end stress on the graft as a stimulus to bone growth. These drawings were made with the distal fragment of the ulna uppermost because of the position of the arm during operation.

In restoring loss of bone near joints, this technic has been employed: By means of an osteotome or chisel, a wedge-shaped mortise is made in the joint fragment and is extended under the capsule, and sometimes completely through to the joint cartilage, without damaging the joint. One end of the graft is driven into this wedge-shaped mortise. The other end of the graft is then inlaid into the long bone fragment by the usual inlay technic and is fixed with kangaroo tendon (Fig. 3).

Restoration of Long Bones.—Restoration of the shaft of the humerus, femur, tibia or any long, large bone has been accomplished by means of a graft inlaid by the author's usual inlay technic, as illustrated in Figure 6, in the larger fragment at *A, B, C* and *E*. On bones of the forearm, or on any bone of small diameter, or in cases in which a bone of large diameter has become conical-ended, as frequently occurs, the mode of repair which has been resorted to is designated, for purpose of description, as the "fishpole" technic (Fig. 6 *H, I* and *J*), since a similar method is employed by the artisan in mending a fishpole.

The influence of stress on the hypertrophy and metabolism of bone has been more strikingly illustrated in bone graft restoration of the shafts of long bones than in any similar class of work. However small the

Fig. 7 (Case 2).—Extreme laxity of left arm due to loss of substance in shaft of humerus as result of wound by machine-gun bullet at Cantigny. The plastic operation for restoration of bone and function in this case was performed seven months after injury and two months after wound had healed.

diameter of the graft, provided it be protected from fracture by external support and at the same time be allowed to withstand stress, it will eventually restore the lost bone in almost every anatomic particular, namely, in diameter, strength and external contour, as well as in respect to the internal architecture.

Immobilization in Extremity Work.—By making the most of all known mechanical joints and by the insertion of kangaroo tendon in such ways as to afford the best internal fixation, in conjunction with the most perfect external fixation by plaster-of-Paris dressings, the extremity being placed in various "positions of neutral muscle-pull," immobilization of the involved fragments has been found possible. Too great emphasis cannot be laid on the importance of putting absorbable ligatures in the skin, so that carefully applied plaster-of-Paris dressings need not be disturbed for a period of at least eight weeks after implantation of the graft. Plain catgut No. 0 or No. 1 with suture-holes puddled with tincture of iodin, serves admirably for this purpose. Chromic catgut, No. 0 or No. 1, is also suitable. The buried sutures in the soft parts should always be small in diameter and as limited in number as possible. The only adequate postoperative dressing in these cases is the plaster-of-Paris splint, applied with the utmost care and molded to the bony contours of the extremity. It should always include at least one joint above and one joint below the bone involved, with due attention given to position, which is of the greatest importance. By way of illustration, in cases of injury of the upper portion of the ulna, the arm should always be put up straight, never with the elbow flexed. In cases of injury at or near the lesser trochanter of the femur, the extremity should always be immobilized in a plaster spica with the thigh abducted and flexed.

Fig. 8 (Case 2).—Loss of about 1½ inches of shaft of humerus.

Synthetic Grafting of Tissues in Construction of New Fingers.—In two cases of loss of four fingers with the adjoining metacarpal bones as a result of high explosive shell and shrapnel wounds, the hands were completely helpless, so far as grasping and holding were concerned. In these cases, function has been restored to a great extent by the synthetic construction

Fig. 9 (Case 2).—Method of immobilization of fractures of humerus. In this case the dressing was allowed to remain on for eight weeks.

of new digits. One of these cases is illustrated in Figures 12, 13 and 14. By providing an apposing surface for the thumb, the usefulness of the member has in each instance been restored.

In plastic work of this nature, which involves the transplantation of more than one kind of tissue, a two-step or multiple-step procedure is the only method whereby a successful sequence may be expected. It is essential, for example, in handling soft parts and bone (as in the construction of new fingers, in plastic repair

Fig. 10 (Case 2).—Tibial bone graft firmly united in position, ten weeks after plastic operation.

of the jaw, etc.) that skin and subcutaneous tissues be firmly united with the host-tissue and that circulation therewith be well established before implantation of bone. Ease of technic and the possibility of obtaining ample soft tissues and bone have also led the author to recommend strongly this type of operative procedure.

Repair of the Mandible.—Probably no branch of surgical repair presents greater difficulty of mechanical fitting and adjusting than in injury to the lower jaw, involving extensive loss of bone. Owing to the irregularity of contour of the jaw fragments, hardness of the bone and lack of anvil stability, such work demands an accuracy and precision of technic that can be secured only by the use of delicately adjusted motor tools, such as the author's tiny circular saws, burrs, drills, end-mills and the like.

Of primary importance is the cosmetic result. In many cases this depends entirely on the construction of a suitable graft framework over which to restore the contours of the face. Such a framework must secure the adequate fixation of the jaw fragments, as well as restoring, in many instances, loss of bone substance. In his plastic work on the jaw, the surgeon will do well to cooperate, so far as possible, with the prosthetic dentist in the application of the most efficient intradental splints. Use of such splints is, however, in many instances, impossible, owing to the extensive loss of teeth and of bone. In the latter cases, the sole means of fixation must be provided by the graft, which should be molded and firmly inlaid into each fragment, adequate in any emergency (such as removal of the dental splint on account of pressure necrosis, etc.) to supply the requisite fixation.

In other work, such as the restoration of the shafts of long bones, neck of femur, etc., the tibia has been found a satisfactory source from which to obtain the graft. In work on the jaw involving extensive bone loss, however, the tibial dimensions are not always sufficient to supply a graft of the necessary curve and size. In such an event, the side of the ilium, adjacent to the anterior superior spine, is the only bone, with the possible exception of the outer table of the skull, which is of adequate dimension to allow the proper modeling of the graft, which is done by means of motor-driven tools in a manner resembling the scroll-work of the cabinet-maker.

Relief of Compression Fractures of the Vertebrae.—The use of the bone graft as a means for relief of compression fractures of the vertebral bodies has afforded highly satisfactory results. On account of meager bone growth and inadequate bone repair around crushed vertebral bodies, and because of constant interference with bony union by the respiratory and voluntary motion, nature, unassisted, does not bring about the proper repair in these cases, even though efficient external means of immobilization be employed for months, and sometimes even for years. To supply the deficiency resulting from lack of bone repair, the bone graft offers a sure means of relief, and its indications in such cases are as definite as in any pathologic or traumatic conditions encountered. It is inserted into the spinous processes by precisely the same technic as has been devised by the author for the treatment of Pott's disease of the spine (Fig. 15).

Preoperative Treatment of Persistent Infection.—In our first series of 100 fracture cases treated by bone graft, we found that postoperative wound infections were more frequent in the last twenty-five cases than previously. However, these cases did not include in

Fig. 11 (Case 2).—Stability of arm from union of graft, ten weeks after operation. Such a posture was impossible before operation.

all instances those wounded at a later date, but rather those in which the primary wound took longer to heal; and the later infections, following the plastic operations, are attributed to a more severe primary infection and to a less complete immunization on the part of the patient.

At the time of the plastic operation, positive cultures were occasionally found in the scar tissue around the bone ends, and small sequestrums were removed from the bone fragments. Not all of these cases, however, showed infection following the operation. In those cases which did, the infection was usually of a mild, low-grade type, apparently owing to the attenuation of the infecting organism or to a partial previous immunization of the patient against that organism.

Fig. 12 (Case 3).—Left hand of an American soldier who lost completely the four fingers and adjoining metacarpal surface following a high explosive shell wound at Château-Thierry. One may note the absence of any apposing surface when the thumb is flexed, as a result of which nothing can be grasped or held.

The scar, on account of its low-grade tissue and its deficient blood supply, furnishes a most unfavorable environment for the reception and nourishment of the graft. To obviate the possibility of subsequent infection in cases which, from their past history, seem unfavorable, and in order to furnish healthy tissues in which to implant the bone graft later, it has been the author's practice to excise the scar at a preliminary operation, laying bare the bone ends, and replacing the scar by plastic flaps of healthy skin, subcutaneous tissue, muscle, fat, etc. If, as has usually been the case, satisfactory healing of the wound takes place, the bone graft operation follows after a period of from ten days to two weeks. By means of such a two-step operative procedure, healthy tissue is provided for the subsequent implantation of bone, and a successful sequence is more reasonably certain.

Source of Graft Material.—Owing to its accessibility and favorable contour, the tibia, perhaps of all the bones of the body, as a source of graft material affords the greatest ease of technic. Moreover, bone from the tibia is nearly always preferable for grafting purposes, not only on account of the dimensions and the plane surface of this bone, which permit of a wide choice in the selection of material, but also because of its characteristic strength and osteogenic activity. In the treatment by bone graft of the foregoing series of 100 cases of fracture, the tibia with few exceptions furnished the graft material. The exceptions were in cases of sliding grafts to restore loss of substance in the humerus, femur or tibia, and in one instance of synthetic transplantation of tissues to form a new finger, in which case bone was transplanted from the clavicle.

Avoidance of Operative Trauma.—There are traumatic influences which have an important bearing on the success of a bone graft operation. It is necessary to avoid certain faults in technic, such as excessive length of operating time, with the resultant drying of the graft or host tissues from contact with the air, rough use of the retractors, poor mechanical fit of graft, absence of coaptation of similar bone layers, or direct trauma from wedging or crushing by the chisel and mallet.

Table 2 permits a comparison of the average operating time with the shortest in certain cases, and has been inserted because it is believed that in no other class of surgery does length of operating time so materially influence results. In this work, in which we are dealing with rigid tissues, every effort must be made to maintain to the fullest possible extent the viability of the transplanted bone, a condition largely dependent on the early union of graft tissue with host tissue and on the adequate establishment of nourishment. Drying of the tissues from contact with the air should be constantly guarded against, not only by the use of saline

TABLE 2.—SUMMARY OF TIME REQUIRED IN BONE GRAFT OPERATIONS, ACCORDING TO SITE OF INJURY

Bone	Time of Operation—Average	Time of Operation—Shortest
Humerus	1 hour	45 minutes
Radius	47 minutes	25 minutes
Ulna	33 minutes	19 minutes
Femur	55 minutes	21 minutes
Tibia	23 minutes	14 minutes

Fig. 13 (Case 3).—To restore lost function of hand, the synthetic transplantation of soft tissues and bone was undertaken in a two-step operative procedure. Skin and soft parts were first turned up from the chest wall to form a boneless finger. Through a pedicle left attached to the chest wall, supply of blood was furnished until circulation with the hand was thoroughly established. The hand and arm were immobilized in plaster for four weeks. In the second operative step, the boneless finger was first cut loose from the chest wall. A tibial graft, inserted through the soft parts, was then mortised firmly into the os magnum. A sliver graft, indicated by the arrow, was affixed alongside for increased osteogenesis. The roentgenogram was taken four weeks after the implantation of the grafts, which now have become firmly united to the bones of the hand.

solution, but by completing the operation in the shortest possible time consistent with good work and with minimum trauma.

Final Results in Forty-Eight Cases.—Too short a time has elapsed to pass judgment, at the present date, on the entire series of 100 cases of fracture. However, in forty-eight cases that were treated before March 1, 1919, and have, therefore, afforded opportunity for observation over a period of at least ten months, we feel justified in reporting definite conclusions.

Fig. 14 (Case 3).—New finger six weeks after last operation. The patient is now able to grasp and hold objects with his thumb and grafted finger.

Of these forty-eight cases, the results in six are questionable; the grafts are still in situ and the roentgen ray reveals bone growth, but the wounds were primarily infected and there yet remain one or more sinuses. Three of these questionable cases, however, show favorable indications of ultimate good results; the other three cases will probably be failures.

Four of the forty-eight cases are definite failures. Of these, one case, a sliding inlay from a tibia to a femur to stabilize a resected knee, was complicated by pneumonia five weeks after the operation; sinuses broke out on both sides of the knee, with a resulting infection of the entire scar tissue of the knee and a failure of part of the graft to "take." Of two radius cases that were failures, one showed a positive Wassermann after, but not before, the operation; and the patient himself removed the fixation dressing on three different occasions. The other radius case showed a bad infection of dense scar tissue. The fourth, and last case of failure, was a humerus case with loss of three inches of substance, and with much scar tissue. The wound broke down, and examination by roentgen ray revealed that the lower end of the graft was not attached to the distal end of the humerus.

Subtracting this group of ten cases, of which four are definite failures and six questionable cases, we have thirty-eight cases remaining, all of which have shown perfect results in respect to postoperative primary healing of the wound, proliferation of new bone as demonstrated by the roentgen ray, and restoration of function. This yields a rate of 79 per cent. perfect results, with a possibility of an ultimate 85 per cent., should three of the questionable cases prove successful.

A complete report of all the plastic operations performed at U. S. Army General Hospital No. 3 will be published as soon as sufficient time has elapsed to permit of trustworthy deductions.

SUMMARY

The following conclusions are based not only on a study of cases and results at U. S. Army General Hospital No. 3, at Colonia, N. J., but also on the author's previous experience with over 1,800 cases treated by bone graft in civilian practice, as well as in extensive animal experimentation. It is believed that the careful observance of these points is essential to success in this class of work.

1. *Early Observation of Wound.*—A careful study of the wound should be made before it has healed, if possible. The type of infecting organism (*Streptococcus hemolyticus*, gas bacillus, etc.), the nature of the clean-up operation and the manner of healing of the wound should be noted.

2. *Time to Operate.*—In a few cases it is permissible to operate after the wound has been completely healed for a period of two months, while in others, on account of possible latent infection, it may be advisable to delay the final plastic work for at least six months. In some of the unfavorable latter cases, a two-step operative method may be followed, consisting of a preliminary excision of scar tissue with replacement by a healthy skin flap, muscle, fat, etc., followed after a period of from ten days to two weeks by the final bone plastic operation.

3. *Immediate Preoperative Observations.*—For the purpose of determining the existence of latent infection, splints should be removed, and deep massage and rough manipulation should be practiced for a period of from one to two weeks prior to the operation. During this time the temperature should be observed, and the parts should be carefully examined for local tenderness or any evidence of a recrudescence of infection. The field of operation should have a forty-eight hour preparation, iodin technic being preferred.

Fig. 15 (Case 4).—Case of compression fracture of third, fourth and fifth lumbar vertebrae caused by fall in dugout. Panel of vertebrae (from clay model of case), showing relief of condition by a tibial graft inlaid into spinous processes from first lumbar to first sacral vertebrae.

4. *Plan of Operation and Choice of Incision.* — By means of roentgenographic and physical examinations, the proposed plan of operation, especially in respect to location of graft, should be determined before incision is made. If possible, the skin incision should not lie directly over the proposed bed of the graft, and the operation should be so planned that the graft may be covered without undue tension of skin and, if possible, so placed that it comes in contact with healthy tissue instead of scar tissue. In several cases in which this has been accomplished, the graft has healed in by primary union, whereas the scar, even at a

considerable distance from the graft, has broken down completely. In cases of extensive loss of bone, the scar tissue may be pushed to one side, in order that the graft may lie in healthy tissue. Drainage wicks of any kind should never be inserted at the time of operation.

5. *Duration of Operation.*—It is believed that the shortest possible operating time consistent with good work and with a minimum amount of trauma is requisite to successful results in these cases.

6. *Use of Motor-Driven Instruments.*—These are essential: (*a*) on account of the necessity for rapid work in order that drying and traumatization of the graft tissues and host tissues may be avoided; (*b*) in order that a cabinet-maker fit may provide for mechanical fixation of parts and for the operation of Roux's law of frictional stimulus to bone growth with a view to an early and adequate establishment of nourishment to the graft; and (*c*) on account of the necessity for the fulfilment of the law of anociassociation. The motor outfit with its various tools to produce automatic fits seems indispensable. The motor-saw, when used by the proper technic, does not heat nor glaze the bone.

7. *Adequate Length of Graft.*—The graft should always, when possible, be of the inlay type, and sufficiently long to extend into each fragment for a distance of at least 2 inches, and always beyond the sclerosed area. The gutter should extend well into the healthy marrow of the host-bone, with which the marrow of the graft should be amply contacted. It is exceedingly important that the bridge of marrow from the marrow canal of one fragment to that of the other should be restored for the transmission of blood vessels, bone cells, etc.

8. *Type of Graft.*—The graft should, if possible, be autogenous, consisting of all the bone layers, namely, periosteum, complete thickness of cortex, endosteum and marrow substance; and it should be so inlaid that the fit is perfect, with exact apposition of corresponding layers of graft tissue to those of the host fragments. Such a contacting fit not only favors the mechanical fixation of the fractured bone and the graft, but also the very potent frictional stimulus to bone growth, emphasized by Roux.

9. *Supplemental Grafts for the Purpose of Osteogenesis.*—Small silver grafts placed alongside the principal fixation graft are most efficacious in supplying additional foci for bone growth.

10. *The Graft as Main Fixative Agent.*—Fixation should always be secured by the graft itself, and not by metal plates or other foreign material, since it is the stimulation from the stress carried by the graft itself that is largely responsible for the healthy metabolism of the graft and for bone growth.

11. *Suture Material.*—The graft should be held in place by a minimum amount of absorbable suture, preferably kangaroo tendon, which is the ideal material for this purpose, in that it is tolerated by tissue, readily absorbable, very strong and reliable. Fine absorbable suture material should be used for the skin and underlying soft parts.

12. *Postoperative Fixation.*—The limb should be firmly immobilized by a plaster-of-Paris cast for a period of from eight to ten weeks following operation, and as long thereafter as the roentgen ray shows it to be necessary. Emphasis should again be placed on the importance of using absorbable skin suture material in order that the plaster dressing need not be disturbed until time for the removal of the splint.

DIAGNOSIS AND SURGICAL TREATMENT OF INTRATHORACIC GOITER

PALLIATIVE TRACHEOTOMY; TRACHEOSTENOSIS *

GUSTAV SCHWYZER, M.D.
MINNEAPOLIS

The term intrathoracic goiter indicates in a general way that the thyroid growth is located in the chest. Woelfler used to classify these goiters as substernal, subclavicular and endothoracic. Others speak of partial or total intrathoracic goiters. None of our goiters belong to the endothoracic or total intrathoracic group; they were all complicated by a goiter on the neck itself.

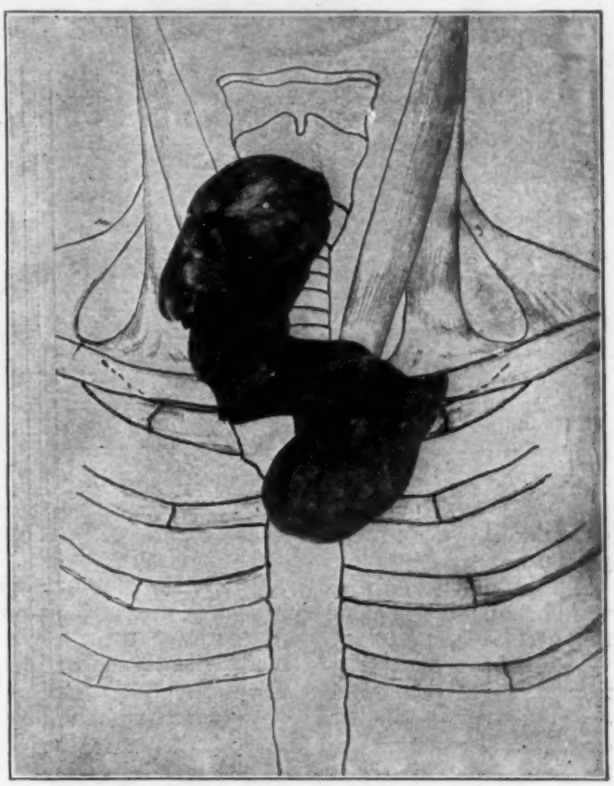

Fig. 1.—Intrathoracic goiter in Mrs. R., aged 57.

In order to eliminate confusion with the ordinary struma profunda projecting into the sternal notch, I shall consider only those goiters that reach to the height of the second rib or lower.

ANATOMY

In order to gain a clear understanding of the symptoms of intrathoracic goiter we must consider for a moment its anatomic relations.

The aperture in the thorax anteroposteriorly measured from the upper border of the sternum to the first dorsal vertebra is only 5 or 6 cm. in distance, and the lateral diameter taken through the middle of both ribs is from 9 to 10 cm. It is evident, therefore, that the aperture into the thorax is the most dangerous place if a goiter is located here, as this bony ring cannot give, and compression of the adjacent organs going through is unavoidable. If the goiter goes through

* Read before the Minnesota Academy of Medicine, Oct. 8, 1919.

the aperture into the cavum mediastini, conditions become more tole-.ble. If it stays back of the sternum, it compresses r .icularly the trachea. The esophagus does not giv. .ny symptoms in most cases; though

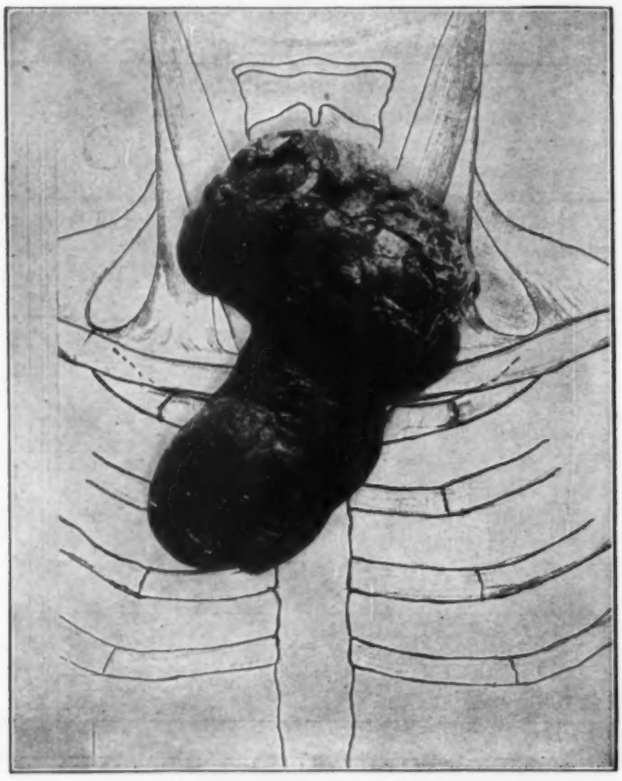

Fig. 2.—Intrathoracic goiter in Mrs. C., aged 63.

difficulty in deglutition speaks for a retrosternal goiter.

The cavum mediastini is bordered in front by the manubrium sterni, the anterior ends of the claviculi and the first ribs, posteriorly by the first three dorsal vertebrae, on the side by the parietal pleurae, and inferiorly by the big blood vessels, the vena and arteria anonyma, the arch of the aorta, and the pericardium. The organs we deal with in this cavum are the vena anonyma, back of it the truncus anonymus arteriosus, the common carotid, and the subclavial artery, the nervi vagi, recurrentes and phrenici, the thoracic duct, the tip of the lungs, the trachea and the esophagus.

DIAGNOSIS

A considerable aid in the diagnosis is a good history. We may learn that the patient had a goiter for years, and that this goiter disappeared or "was cured," as the patient often expresses himself. He may mention that breathing was always labored at the least muscular effort, and difficulty in breathing remained even after the disappearance of the goiter on the neck. In addition the patient may say that in bed he is forced to lie in a certain position. Often he requires no pillow or, on the other hand, he may have to elevate his head unusually high. Should he change the well-chosen position of the head unconsciously in his sleep, the patient awakens feeling chocked, has to sit up straight in bed, or runs to the window in an effort to inhale air. Sometimes he spends night after night in a chair, fearing the recurrence of one of these spells.

INSPECTION

At times such a patient has almost a comical appearance, carrying his head in a high and stiff manner. Again, we may find the head bent forward with the chin approaching the sternum.

Physical Examination.—If no goiter attracts our attention, we now start with a thorough physical examination of the chest. Percussion may give us a distinct dulness over the sternum, or over the sternum and one side, or over both sides. This symptom is a more constant one than the findings perceived through auscultation. The latter examination, though, may help us at times in our diagnosis. The breathing in the upper chest may be so light and superficial that it attracts our attention. This finding points to the fact that there is an impediment to the breathing. The lung may be squeezed to the side, so much so that it cannot inflate. Or a bronchus may be compressed.

Whether or not there is a goiter plainly visible, with or without dyspnea, we are bound to make a careful palpation of the neck down into the jugulum as far as we can reach. We may find a palpatory resistance in the jugulum which is constant or which appears only during deglutition. The larynx may stand very low. We then speak of a ptosis of the larynx. Its excursion during deglutition might be markedly reduced. Consequently we must always remember deglutition when we palpate.

If hoarseness exists, then the laryngoscope will tell us of a paresis or a paralysis of the vocal cord. Again we are a step ahead in the diagnosis. True, there

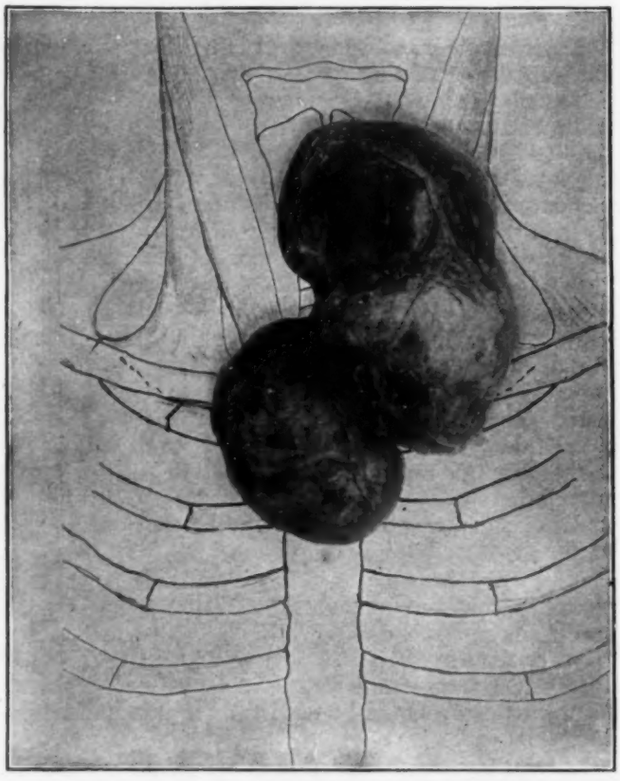

Fig. 3.—Intrathoracic goiter in Mrs. R., aged 53.

are some cases with extreme dyspnea in which the more skilful laryngoscopist will be unable to succeed in seeing far down into the trachea. I will add that not only the vocal cords but also the lower part of the trachea must be included in the laryngoscopic picture.

Pathologic Structure.—At times there are symptoms existing which originate from the special pathologic structure of the goiter, and these also have to be considered.

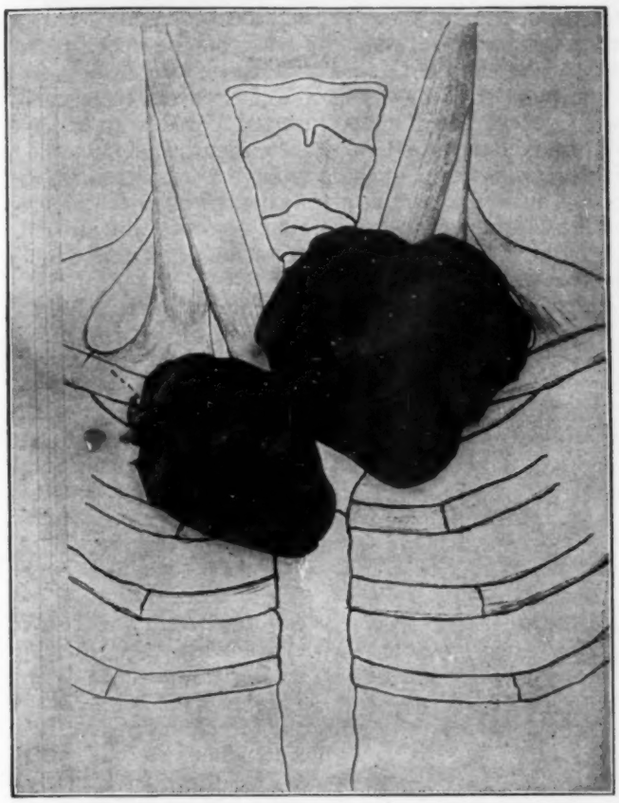

Fig. 4.—Intrathoracic goiter in Mrs. O., aged 64.

The malignant intrathoracic goiter in its initial state is of course intracapsular and cannot be diagnosed. Should we have severe dyspnea and especially paralysis of the recurrent laryngeal nerve together with some metastatic tumor, the diagnosis becomes certain, but a cure impossible.

Fortunately, most of the intrathoracic goiters are of benign nature. In this group belongs the toxic or exophthalmic intrathoracic goiters with their characteristic symptoms: tachycardia, tremor, disturbances of the nervous system, and the various eye symptoms including exophthalmos.

Heart Symptoms.—The connection between the goiter and the heart has long been recognized. We commonly speak of a "goiter heart." A toxic goiter or the pronounced exophthalmic goiter is responsible for the thyrotoxic heart. But there is another important heart affection more commonly found in intrathoracic goiter called the "mechanical goiter heart." It is an accepted thought that pressure of the tumor on the large blood vessels as well as on the nerves, especially the cardiac branches of the sympathetic nerve, can bring on this condition of the heart. On examining the heart itself we commonly find its valves free from murmur. It usually appears enlarged, but because of the dulness mostly constant in the chest, the outlines of the heart become indistinct. The heart action is confused, irregular and accelerated.

A very characteristic symptom is the net of dilated veins on the neck and upper chest anteriorly. The superior vena cava, which brings all the blood from the upper part of the body into the right atrium, suffers principally through this pressure. That blood is now drained through some side channels (the venae costalis superiores, hemiazygos and azygos) into the inferior vena cava. This phenomenon was observed in one of my cases (Miss H.). Her history tells us that at one time she was treated at a hospital for these varicose veins.

The arterial blood vessels also can suffer.

There are cases reported in which one common carotid and the radial artery of the same side were only faintly pulsating, owing to the severe pressure from an intrathoracic goiter.

Roentgen-Ray Examination.—Good roentgenograms and a fluoroscopic examination are, indeed, a welcome aid for the diagnosis. There are some rare intrathoracic goiters, for instance, tumors in the chest from aberrant thyroids, in which the roentgenographic examination is the only means by which we can detect such a disease. We should have an anterior and a lateral roentgen-ray view, lateral especially, as the intrathoracic goiter is located particularly in the anterior upper portion of the mediastinum. If during deglutition in the fluoroscopic examination the tumor follows the movement of the larynx and trachea, regularly and synchronously, the last doubt in the diagnosis is removed.

Indications for Operation.—Whether or not a case of intrathoracic goiter is operable does not depend on the degree of dyspnea, nor does it depend on the pressure of the nerves, or on any of the symptoms mentioned; but it does depend on the heart. A degenerated heart muscle, a pronounced myocarditis bringing on secondary changes of the other inner organs, is a contraindication for operation. But even after carefully weighing the various heart symptoms, we are

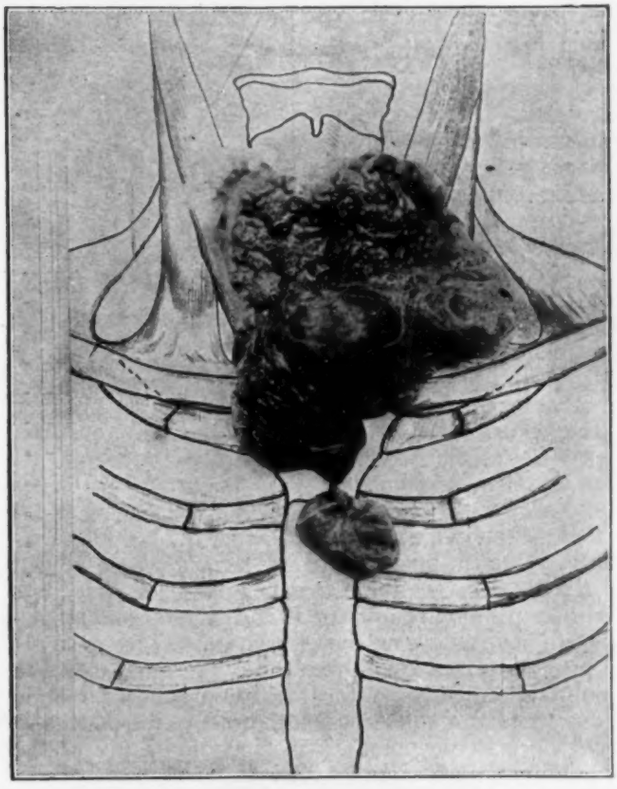

Fig. 5.—Intrathoracic exophthalmic goiter in Mr. C., aged 49.

always taking a certain risk, for we have no direct test which will reassure us that the heart is sufficiently resistant for the operation.

SURGERY

A retrosternal goiter with its precarious dyspnea should be operated on without much delay. We must remember that choking spells do not repeat themselves indefinitely, for with each such dyspneic attack the patient is one step nearer his grave. I shall never forget one case at Kocher's clinic which resulted fatally. It was a case in which dyspnea increased so rapidly that not even a tracheotomy could be done. The patient, who had an intrathoracic substernal goiter (found at necropsy), was ordered to bed. He disobeyed the physician's orders, left his bed during the night, and by doing so brought on a new spell of dyspnea, this time fatal.

It is desirable that the operation be begun under local anesthesia if the dyspnea is very marked or if the goiter is of toxic nature. Concerning this point, one of my cases will open an argument. A woman, aged 64, with a subclavicular goiter, died from pneumonia on the fourth day following the operation, which was done under local anesthesia. I am inclined to think that the severe mechanical injury resulting from working directly on the trachea was sufficient cause for the death. It has been my experience that even ordinary goiter operations may be complicated by an acute, putrid bronchitis. For this reason de Quervain in Bern avoids as often as possible dissecting the isthmus free from the trachea unless there is a strict indication for the removal of the isthmus.

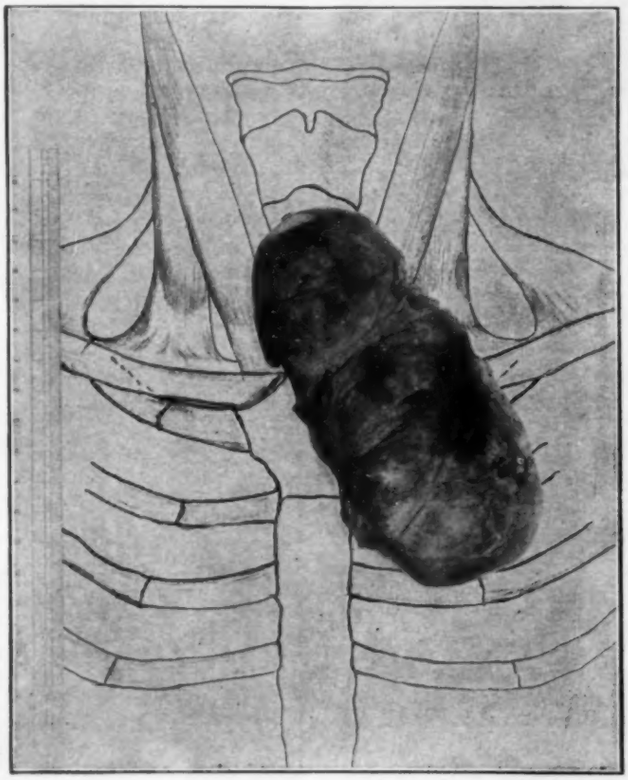

Fig. 6.—Intrathoracic goiter in Mr. M., aged 56.

Excitement must be kept away from the patient as much as possible. Very important too is the position of the patient on the operating table. Let the patient be the judge to tell us whether the head lies correctly. Only in apathetic patients must we be guided by the stridor. If the latter is minimized, the most desirable position is found. It is of the utmost importance to have an eye on the respiration. If the extreme dyspnea increases to a degree too dangerous for life as the operation progresses, a tracheotomy must be made and a cannula of sufficient length must be introduced to reach beyond the point of obstruction. I prefer the flexible cannula devised by Koenig.

This operation, which is only palliative, proves to be very difficult at times, especially if the trachea is covered by the thyroid mass above the manubrium sterni. The most desirable way that the operation can be performed is to divide the isthmus wherever it is most feasible and dissect it bluntly as much as possible from the trachea.

While surgeons formerly practiced a two-stage operation, we today excise the tumor regardless of a tracheotomy. The tumor itself must be bluntly enucleated from within its capsule. Its blood vessels as they present themselves require exact attention. Only in this way can fatal hemorrhage be avoided. I always start my goiter excisions by tying off the upper horns. I was astonished to find that no severe hemorrhage ever followed. In one case I compressed temporarily with gauze, but I never inserted liquid wax, a procedure recommended by competent surgeons. Should a large blood vessel like the anonyma become torn, the question in my mind remains open whether the hemorrhage can be controlled without resecting the sternum and the clavicles, a procedure which in itself carries unavoidable complications.

Kocher has devised a good clamp of great value for traction on such intrathoracic tumors. The instrument compresses the tumor, thus avoiding profuse bleeding. The sharp hooks of the instrument prevent it from slipping, and the tumor, therefore, must follow the traction.

I have drained every cavity which naturally exists after such goiter excisions with fine, flexible, rubber tubes. The drains are removed as soon as the secretion ceases. It is astonishing in how short a time the obliteration of such cavities takes place.

Let us consider my own cases. All these intrathoracic goiters were of benign nature; one was a double cyst, two distinctly toxic, one exophthalmic, and the others were colloid, parenchymatous or cysto-parenchymatous goiters. Two were in men and fourteen in women, although the statistics generally favor the male sex for intrathoracic goiters.

The one exophthalmic case, in a man, aged 49, I shall report somewhat in detail:

I performed the ligation operation on both upper horns in January, 1912. The patient, who had the characteristic tremor, perspiration, sleeplessness, sick feeling in the stomach and abdomen, and loss of body weight (160 pounds), showed a pulse of 122 when quiet in bed. The characteristic symptoms existed over the gland, but there was no exophthalmos. The operation had the desired effect. From notes taken in January, 1914, I learned that he improved generally within the two years after the ligation. His pulse came down to between 106 and 110. Still he suffered from his heart beating and from slightly dyspneic breathing. At this examination the laryngoscope detected a deviation of the trachea to the right and compression of the tracheal rings.

Having felt the intrathoracic part of the goiter at the first operation, I proceeded with the excision of the goiter in January, 1914. It proved to be a bloody and difficult operation. The tumor tore in different places, but luck was with me. The patient left the hospital two weeks later

with a pulse of 76, and in June, 1914 (same year), he writes that he does all the work without a hired man on his farm of 160 acres. His weight is now 200 pounds, his pulse 74, and he eats and sleeps well.

One of my toxic cases was unusual on account of acute mental disturbance lasting about thirty hours following the operation. In her confusion the patient tore the bedclothes and constantly tried to leave her bed.

Two cases showed a plain "mechanical heart":

Mrs. R., aged 57, had a very irregular pulse at a high rate without any pathologic findings over the valves. To my surprise there were only 100 pulsations on the second day following the operation.

Mrs. C., aged 63, had a perfectly normal heart. The tone over all the valves was clear, but the function of the heart was increased in frequency and energy. The pulse rate, previously up to 132, became normal forty-eight hours after operation. The heart in any of our thyrotoxic patients has never responded so promptly, that is, never has come down to a norm in such a short time following excision.

In three cases of the series my diagnosis was incomplete. I thought I had to do with strumae profundae, which proved to be intrathoracic goiters.

Since I always found a goiter on the neck, my attention was drawn immediately to the diagnosis, as I never failed to find dyspnea present, the main symptom.

Owing to the fact that most of my cases date back a number of years when roentgenology had not reached the point of perfection of today, I depended in the first place on the clinical symptoms.

TRACHEOSTENOSIS

As dyspnea caused by compression of the trachea is the main symptom in intrathoracic cases, I may be permitted to consider this phenomenon for a moment. A normal trachea has the form of a stirrup. Compression by a goiter at any height naturally changes this picture. We have accurate knowledge from specimens taken at necropsies and we know that the natural picture of the trachea can be distorted in almost every way. There may be a sheath formation, or a half-moon formation. The trachea may be strictured circularly by a circular goiter. The trachea may also be deviated to one side; it may be distorted by two different goiters on different sides and even at different heights. There may be a trachea twisted in such a way that surgeons formerly spoke of a scoliosis.

At the beginning of the nineteenth century, a French surgeon (Lullier-Winslow) described the sheath formation of a trachea. Demme, a surgeon in Bern (Switzerland) in the first half of the nineteenth century, demonstrated the same tracheal deformity with brilliant illustrations that have impressed surgeons.

An interesting controversy was started by Rose in the eighties. He had a series of sudden deaths. Some occurred at the time of the goiter operations, and others hours following the operations. He thought that more important than the compression of the trachea itself was the fact that the trachea became softened at the place of pressure. He explained this softening through fatty degeneration. His statement encouraged a number of eminent surgeons of those days to look up matters histologically. The lengthy debate ended in the accepted fact that no fatty degeneration existed in the cartilage, but that an atrophy of the cartilage became evident. Rotter then found the interesting point that the membranous bands between the cartilaginous rings were elongated in all these cases of compression of the trachea. It was then left to Woelfler to settle this argument, and at the same time bring out facts which led us to believe that the deaths which Rose had on the operating table and which he believed to be due to the softening of the trachea resulted from a collapse of the trachea at inspiration. At the time of expiration, such trachea freed through operation will fill with air like the sail of a boat; but during inspiration the trachea aspirates itself, that is, collapses. The goiter on the trachea is a support and acts like a splint.

I had the opportunity to witness this phenomenon in three cases, though nonintrathoracic. Not having been compelled to make a tracheotomy for any of my intrathoracic goiters, I may be permitted to mention briefly those three cases. They were all in girls from 15 to 20 years old, and all were double goiters. In two of them I was forced to add a tracheotomy within twelve hours after the operation. The dyspnea following the excision gradually became more marked; intercostal inspiration was exceedingly plain. The third patient, with a double struma vasculosa, was breathing with marked stridor. Excision of one goiter cleared the respiration, but as soon as the other side was removed the trachea collapsed at inspiration. I acted quickly and incised the trachea at once. All three patients recovered.

Tracheostenosis very seldom requires surgical correction at the time of operation. The trachea cannula, however, must always have its place among the instruments.

CONCLUSION

If I may be allowed to compare my work in intrathoracic goiters with the general work in goiters, I am impressed by the rather gratifying results, in view of the fact that no other operation has more marked and immediate success. The patient who, with his labored breathing and his cardiac trouble, appears to himself and to others an invalid is now, through removal of the growth in the chest, restored to health immediately.

Maternity Benefit Systems.—The United States is the only one of the leading industrial countries of the world to have no system of state national assistance to maternity according to the Children's Bureau of the U. S. Department of Labor. The countries having such systems are: Australia, Austria, Bosnia, Denmark, France, Germany, Great Britain, Herzegovina, Hungary, Italy, Luxemburg, Netherlands, New Zealand, Norway, Roumania, Russia, Serbia, Sweden and Switzerland. Few of these countries offer benefits to all mothers, but there is a general agreement that wage earners shall be included. The benefits provided consist usually in money, either a lump sum or weekly payments, and occasionally in medicine and medical and surgical services. The expense of the benefits is most frequently shared by the wage earner, the employer, and the state, the wage earner contributing the largest share. In Australia and France, however, the government bears the entire cost. Australia in 1913-1914 paid out $3,284,839 in maternity allowances, and France calls on the national government for over $1,000,000 annually and gets another $1,000,000 annually from local government for this purpose. The English benefits are part of a health insurance scheme for wage earners, of which the government bears a share equal, in the case of the women, to one fourth of the total benefits. In New Zealand there is a voluntary system of health insurance, which includes a maternity benefit, but it reaches so few mothers as to make its effect almost negligible. The method of attack is not through maternity benefits but through adequate nursing service, hospital and medical care, and instruction in the hygiene of maternity and infancy. At present the death rate of New Zealand is the lowest in the world. Australia, on the other hand, gives a maternity benefit of 5 pounds, over which there is no supervision.

Clinical Notes, Suggestions, and New Instruments

IMPROVEMENTS IN TECHNIC FOR THE OBSTETRIC NURSERY

HERBERT THOMS, M.D., NEW HAVEN, CONN.

The daily use of the devices herein described has given excellent results in the maternity department of the Grace Hospital, New Haven, Conn. The first is a simple and efficient method for the identification of babies in the obstetric nursery and the second is a new instrument for use in stretching and retracting the foreskin of newborn babies.

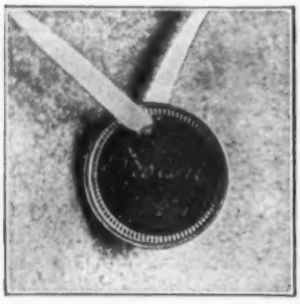

Fig. 1.—Aluminum tag for identification of infants.

In reading the transactions of the Brooklyn Medical Society for May 2, 1919, I became greatly interested in the various methods that were there described for the identification of babies. All of the methods were efficient, but their adaptability to all maternity hospitals was not great. After some experimentation, the method here depicted was adopted with uniform success, not only because of its simplicity but particularly because of its adaptability.

A small aluminum tag the size and thickness of a 5-cent piece (Fig. 1), with a raised edge and a perforation near the edge, is used. This is readily written or engraved on with a steel pencil or machinist's s_let. This makes, of course, an absolutely ineffaceable record. Immediately after the birth and tying and cutting of the cord, this tag is tied around the baby's neck by means of linen tape, three knots being used in tying. This tape is not only very strong but also unabrasive. Aluminum is employed because it is noncorrosive, very light, inexpensive, nonabrasive, and readily written on with the steel pencil.

The reaction of the mothers in the hospital since the adoption of this method is interesting. Not only have they been delighted with their "tagged babies," but they insist on taking their babies home with the tag adornment undisturbed.

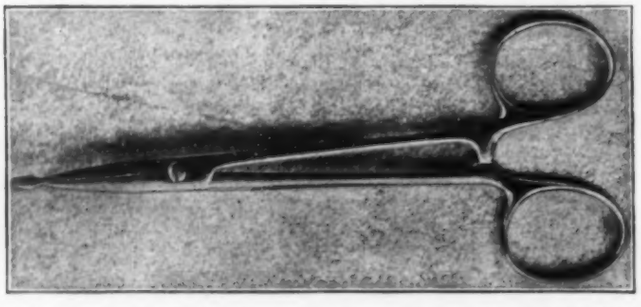

Fig. 2.—Modification of hemostatic forceps for stretching and dilating foreskin.

The instrument shown in Figure 2 is modified from hemostatic forceps. Every one who has used the ordinary hemostat in stretching the foreskin of babies realizes how readily the instrument slips away from the penis. In order to obviate this and to make a more even dilating surface, the instrument here shown was devised. About 0.5 cm. from the end of the forceps on each side is a marked concavity, the purpose of which is readily understood. After the adhesions between the foreskin and the glans have been broken up with an ordinary probe, this instrument is introduced between the glans and the foreskin, and dilatation is easily accomplished.

59 College Street.

A CHAIR FOR SPINAL PUNCTURE*

NORMAN E. WILLIAMSON, M.D., STOCKTON, CALIF.
Pathologist, Stockton State Hospital

In the ordinary method of performing spinal puncture it is difficult to get the patient in the right position. Even when the patient is held by attendants, as has been my practice, there is the possibility of sudden movement closing, more or less, the space between the vertebrae. If a flexible gold or platinum iridium needle is used, there is no danger of breaking; but one may experience considerable trouble in inserting the needle, especially after it has been repeatedly kinked. With the back properly bowed and the needle inserted, it is at times found that the needle is directed too near the perpendicular, and the fluid runs down the needle and is lost on the back. This necessitates a troublesome change of position.

Chair for spinal puncture; arrow points to needle.

I have devised a spinal chair which holds the patient in the correct position so that no attendants are necessary. The front of the seat is so raised that the line of its fall to the lowest point forms an angle of 27 degrees to the horizon. Back of this is a 5-inch curved rise to prevent the patient from sliding off backward. When the patient is sitting at this angle with the back curved outward and the needle inserted, the point of the needle is elevated so that the fluid always drips into the test tube.

A webbing strap with buckle attached to the back of the chair is fastened in front of the abdomen, and the curve of the back is obtained, and fixed by an adjustable bar brought down over the scapulae. The rod passing through this bar can be fixed by a thumb screw to any point in slots in uprights erected at each side opposite the lowest point in the seat.

The curvature of the back is maintained by three points of fixation, and the puncture is made with ease and safety.

* From the Stockton State Hospital.

ACUTE MYELOID LEUKEMIA SIMULATING MENINGITIS

E. E. H. MUNRO, M.D., ST. LOUIS

REPORT OF CASE

History.—Miss M. W. (589), aged 17, telephone operator, was admitted to the City Isolation Hospital, St. Louis, Sept. 17, 1919, having been transferred from the St. Louis City Hospital because it was suspected that she had meningitis. Her past general health had been good. Of significance in the past history is the fact that she had had an alveolar abscess of the superior right maxilla five months before admission. The abscess had been lanced three times during the past three months. It had given no trouble for the past two and a half months. Occasionally during the past four months the patient complained of swelling of the feet in the evening. Three times she fainted while at work.

The present illness began five days before admission with headache (occipital) and slight vertigo. The patient vomited twice during the first day of illness, although she was not sick enough to go to bed. The next day the patient remained up but complained of vertigo and headache. She vomited four times and slept poorly that night. On the fourth day, fever and delirium developed. On the fifth day, the patient was in a stupor. The family physician sent her to the city hospital, where stiff neck and positive Kernig's and Babinski's signs were noted. A spinal puncture was performed that evening and repeated the next morning. The fluid was blood stained and under increased pressure. Smears and cultures from the fluid were negative. The patient was transferred to the isolation hospital as suffering from meningitis.

Examination.—On admission to the isolation hospital the patient was semiconscious, the temperature was 105, the pulse 120, and the respirations 38. There was stiff neck, mild opisthotonos, and slight external strabismus; the right pupil was more widely dilated than the left, and both pupils reacted to light. At intervals there was a twitching of the right side of the face. Pressure over the right ear caused moaning and marked twitching of that side of the face. Both ear drums were normal in appearance. The teeth were in good condition. The scar of the old alveolar abscess was seen, but there was no evidence of active infection. The tonsils were moderately enlarged and red. The superficial lymphatics, cervical, axillary, epitrochlear and inguinal, were all slightly enlarged. The systolic blood pressure was 135, and the diastolic, 75 mm. The upper margin of the liver dulness in the right nipple line was at the fifth intercostal space; the lower border was palpable 6 cm. below the costal margin in the same line. The spleen was palpable 6 cm. below the level of the umbilicus in the left nipple line. It also extended 4 cm. to the right of the midline of the abdomen. A notch was made out at the level of the umbilicus. There was general rigidity of the extremities, more marked in the upper extremities. Kernig's sign was positive. The knee jerk was sluggishly active on the left, and absent on the right. On admission the plantar reflexes were hyperactive; on the following day, Babinski's reflex was positive; on the third and fourth days, all plantar reflexes were absent. The blood count revealed: 3,080,000 red blood cells; 720,000 white blood cells; hemoglobin, 40 per cent. In the stained blood smear there were a number of large mononuclear cells, the size of a myelocyte, with a nucleus which almost completely filled the cell. This was also found in a lymphocyte which could not be accurately classified. The differential count on admission was: myelocytes, 66 per cent.; myeloblasts, 6 per cent.; polymorphonuclear neutrophils, 16 per cent.; large mononuclears, 10 per cent.; eosinophils, 2 per cent., and normoblasts, 6.

Diagnosis.—A diagnosis was made of leukemia with hemorrhage into the central nervous system.

Treatment and Results.—Spinal puncture on four occasions revealed a yellowish pink fluid under increased pressure. Smears and cultures disclosed no organisms. The Wassermann and tuberculosis complement fixation tests were negative. Blood cultures were negative. A catheterized specimen of urine showed albumin and a large number of hyaline and finely granular casts.

For four days the rectal temperature ranged from 103 to 105.6. On the last two days there was involuntary urination and defecation. Several times a cool tap water enema was returned blood stained.

Necropsy Findings.—The patient died on the fifth day after admission. Necropsy was performed four hours after death by Dr. Sherry, city pathologist. No evidence of an inflammatory condition anywhere in the central nervous system was found. There was a very marked engorgement of the vessels of the meninges and an acute edema of the brain and cord. No gross point of hemorrhage was found. The omentum, mesentery, and intestinal serosa showed many minute hemorrhages. The intestinal mucosa showed diffusely scattered minute hemorrhages. There was a small amount of free blood in the lumen.

The chambers of the heart were filled with the characteristic greenish yellow clots. Microscopically the heart showed great engorgement of the vessels and marked mononuclear infiltration between the muscle columns. This engorgement of the vessels and mononuclear infiltration were seen in the liver, spleen, ovary, pancreas, heart, kidney, cerebellum, spinal cord, coverings, lung, lymph glands and intestine. The capsule of the liver was thickened, and directly beneath it and almost completely separating it from the parenchyma was a layer of mononuclear cells of varying thickness.

The liver and spleen were very large. The spleen weighed over 13,000 gm. The spleen showed a number of sharply outlined yellowish, lymphoid tumors giving the appearance of anemic infarcts.

There was general hyperplasia of lymphoid tissue with notable enlargement of the mesenteric lymph glands and of Peyer's patches.

COMMENT

Although the history of onset and the clinical picture presented by this case would lead us to suspect strongly a meningitis, it is evident that the whole picture was produced by the leukemia.

Therapeutics

A DEPARTMENT DEVOTED TO THE IMPROVEMENT OF THERAPY. A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

MILK AS A VEHICLE FOR CASTOR OIL

LOUIE C. BOYD, Williamsport, Pa., writes: "I was much interested in extracts from an article originally published in THE JOURNAL on giving castor oil. I want to object emphatically to the giving of medicine in food and especially in milk. Milk is too valuable a food for long usage (in tuberculosis, for instance) to have the taste for it changed to utter disgust, with inability to take it with any relish because some medicine was given temporarily in milk. In the matter of castor oil, I suggest the following ways: 1. Hold the nose and swallow the dose. 2. Hold a piece of ice in the mouth for a time and then proceed as under 1. 3. Put diluted lemon juice in a glass; rub the rind on the edge of the glass; pour in oil and a small amount of diluted juice on top. If desired, a pinch of sodium bicarbonate can be dropped in, which will make it froth. 4. Put oil in the froth of soda pop."

COMMENT.—The objection to the use of castor oil in milk or in any other food is well taken; and such objection was voiced in the article on castor oil referred to. The fact remains, however, that there are some patients who prefer to take it in milk, and that the odor of pure unspoiled castor oil is so faint as to be unobjectionable. All the methods suggested by the writer are useful. Especially interesting and, no doubt effective, is the use of lemon juice, as detailed under 3; though, unless the diluted lemon juice is sweetened, children would refuse to take the dose.

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SATURDAY, FEBRUARY 28, 1920

SOME FACTORS IN BONE REPAIR

In the process of the bone repair which follows fracture and other injury of the osseous system, there is frequently considerable débris to be eliminated, such as blood clots, injured bone fragments and other damaged tissue. In addition to this necessity in the early stages of the reparative process, at a subsequent stage the preliminary or primitive new structure must in part be removed to give place to true bone. The excess of the provisional callus which is organized in connection with a bone injury as a rule gradually disappears, so that, as in the course of bone growth, bone resorption is likewise an active process in the later stages of bone repair. Osteoblasts are concerned first of all in the formation of primary bone from calcified cartilage. Until quite recently, it has been assumed that the so-called osteoclasts, which function in the formation of the large central marrow cavities of bones and in the metamorphosis resulting in the permanent bone, are concerned with the absorption and clearing away of cartilage in bone growth. They have been looked on as the scavengers of the developing osseous structures.

The investigations of Shipley and Macklin[1] at the Johns Hopkins University have thrown doubt on the assumed phagocytic action of the long recognized osteoblasts. By methods of vital staining with dyes belonging to the benzidin series of colors, it has become possible to identify throughout the body the special phagocytic cells which store the dyestuffs in the form of very minute dye granules, just as the mobile phagocytes of the blood engulf bacteria and other particles. Of late the term macrophage, first employed by Metchnikoff, has been applied to the entire group of phagocytic cells which are characterized by a uniform functional response to these colloidal dyestuffs. As a writer has recently remarked, the term macrophage is a physiologic designation, including within its compass very diverse morphologic elements. This similarity in staining reaction is but an expression of the phagocytic potentiality which these cells hold in common, and which manifests itself during their everyday existence in the ingestion and storage of certain elements of the surrounding tissue fluids. Some time ago it was pointed out in THE JOURNAL that the resorption of disintegrating calcified tissue in the secondary stages of osseous development, if judged by the results with vital staining achieved by Shipley and Macklin,[1] must be attributed not to the osteoclasts but to fixed macrophages represented by the ordinary reticulo-endothelial cells of the marrow reticulum.

It has now been demonstrated by Macklin[2] of the University of Pittsburgh that the same agencies function in the healing of bone wounds. Macrophages, which stain brilliantly with trypan blue, soon congregate at the site of the injury, where they increase in numbers and in size, and demonstrate increased phagocytic power. They assist in dealing with the tissue waste resulting from the trauma. These phagocytes are developed principally from the lymphocyte-like cells of the blood stream, but some are derived from local mononuclear cells with phagocytic potentialities. Most of them ultimately disintegrate in situ. Furthermore, according to Macklin, during the structural changes attending the transformation of provisional into permanent callus, trypanophil macrophages develop in the callus spaces from the reticulum cells and become numerous, large and phagocytic. They function in the removal of redundant bony spicules, their particular rôle being the absorption of the waste products formed by the breaking down of the matrix. When cartilage is present in the callus they also play a part in its removal. Their action here is thus the same as that of the macrophages of developing bone.

1. Shipley, P. G., and Macklin, C. C.: The Demonstration of Centers of Osteoblastic Activity by Use of Vital Dyes of the Benzidine Series, Anat. Record **10**: 597, 1916; Some Features of Osteogenesis in the Light of Vital Staining. Am. J. Physiol. **42**: 117, 1916.

2. Macklin, C. C.: The Development and Function of Macrophages in the Repair of Experimental Bone-Wounds in Rats Vitally Stained with Trypan Blue, Publication 272, Carnegie Institution of Washington, p. 1.

REGIONAL HEALTH SURVEYS

Napier Burnett,[3] a British expert on public health, has recently given an interesting account of a regional survey of the hospital situation in a northern district in England. The success of the concentration and coordination of effort in protecting the health of troops which was exercised during the war seems to have opened the eyes of the British government to the possibilities of similar coordinated action during times of peace. Among the results is the formation of a ministry of health in Great Britain. Burnett's article indicates that the preliminary information on which action must be based is being gathered under this ministry.

The survey which Burnett describes covered an area of 4,000 square miles containing a population of two and a half million people. Data were collected covering the ratable value of property; the number and distribution of physicians and midwives in each locality; the various types of hospitals, dispensaries and convalescent homes; the birth rate and the infant

3. Burnett, Napier: Edinburgh M. J. **23**: 387 (Dec.) 1919.

mortality rate; the population living in one, two and three room houses, and the transport facilities by rail and road. As would be expected, certain facts were brought out which, in spite of difference in medical organization in the two countries, are not without interest to American physicians. There were clear indications that the number of beds available in general hospitals was entirely inadequate, there being only 0.76 bed per thousand of the population. This was offset to some extent by the fact that there were as many beds available for infectious diseases as there were general hospital beds, and that, as contrasted with American conditions, there were a larger number of convalescent homes than exist in this country. The report also brought out that there was a lack of accommodations for medical as contrasted with surgical cases, that the distribution of the hospitals throughout the district was very unsatisfactory, and that the hospitals were having difficulties on account of lack of funds, just as they are in this country.

The report is of particular interest because certain aspects of the hospital question are at present under scrutiny here. One of the main points emphasized is the unsatisfactoriness of allowing the health machinery of a country to develop in a haphazard fashion. There can be no question that if the hospital development of a given region should be preceded by a survey in which data are collected concerning the distribution of the population and other important factors, such as those mentioned, the locations of hospitals would frequently be quite different from what they are. Now that an extensive hospital inspection is actually imminent in the United States, would it not be possible to combine with it the collection of information bearing on the health conditions of the population served by each hospital? It would seem that the situation presents a great opportunity for public service.

COMPENSATORY RESPONSES TO THE OXYGEN WANT AT HIGH ALTITUDES

Life at high altitudes is liable to be attended with symptoms of illness, whether the sojourn in the regions of lowered barometric pressure be on a mountain, in a balloon, or in an aeroplane. The essential cause of altitude sickness has been demonstrated repeatedly to be a lack of oxygen. Whatever the method by which the oxygen supply of the body is reduced, there will occur adaptive reactions having the evident function of furnishing in some way the indispensable element that is needed by the active tissues. All of the latter become sensitive to the oxygen want, but the responses are undoubtedly initiated in the central nervous system. They are definitely stimulated at first. In the effort to compensate for the reduction of the oxygen supply the blood, the respiration and the circulation may become involved. Thus, as has been indicated repeatedly by THE JOURNAL, there may be an increase in the amount of hemoglobin in the body, and associated with this a redistribution of the red corpuscles whereby a reserve supply is thrown into the general circulation; deeper breathing may bring about increased ventilation of the lungs; an increase in the rate of blood flow may occur. Each of these responses tends to insure a more adequate supply of oxygen to the tissues.[1]

In the acclimatization to oxygen want which follows the ascent of a mountain, the respiratory response is almost invariably the first to appear, beginning during the trip or almost immediately after the summit is reached. The increment in the number of erythrocytes comes more slowly and gradually. The alterations in the pulse rate may also be somewhat gradual. These effects, brought about by protracted residence at high altitudes, in turn disappear only gradually when the person returns to a lower barometric level.

As was recently pointed out[2] in relation to the more sudden shifts in altitude corresponding to the rapid flight of the modern aeroplane, similar adaptive responses are undergone by the aviator; but in contrast with the experiences of the alpinist, they develop much more quickly. Gregg, Lutz and Schneider,[3] who have been engaged in extensive researches on these questions in the Medical Research Laboratory of the Air Service at Mineola, N. Y., have found that following the more sudden changes in atmospheric pressure and oxygen tension such as may occur in aviation, there is no such uniformity in the relative response of the different adaptive mechanisms as is found after the slower ascents on mountains. In other words, the relative values of the different compensatory reactions to low oxygen tension may differ as does the sensitiveness of different persons. The aeronautic physiologists report that the majority of men appear to make a well-balanced use of the three mechanisms for supplying oxygen. The ventilation of the lungs, the rate of blood flow, and the percentage of red corpuscles and hemoglobin are definitely increased. Some meet the new condition largely by increased respiration, and others depend almost entirely on an increased blood flow. In many individuals, during the early period of exposure to a decreasing oxygen, the burden of compensation is borne wholly by the circulatory and respiratory mechanisms; but later the blood changes relieve one or both of these mechanisms from a part of the burden. There is evidently an interdependence and interplay of the adaptive mechanisms. The same person may compensate differently in each of a series of emergencies associated with lowered oxygen.

In another respect also the compensatory reactions to a rapid reduction in oxygen differ from experiences in mountaineering. They disappear quickly when the

1. An excellent review of the evidence for these adaptive changes at high altitudes will be found in the Manual of the Medical Research Laboratory, War Department, Air Service, Division of Military Aeronautics, Washington, D. C., 1918.

2. Low Barometric Pressure and Changes in Circulation, editorial, J. A. M. A. **74**: 250 (Jan. 24) 1920.

3. Gregg, H. W.; Lutz, B. R., and Schneider, E. C.: Compensatory Reactions to Low Oxygen, Am. J. Physiol. **50**: 302 (Dec.) 1919.

oxygen tension is restored. There is little lag in the changes induced. Schneider and his co-workers[2] conclude that the differences in the responses observed under these two different conditions of exposure to low oxygen depend, no doubt, on the suddenness with which the low barometric pressure and low oxygen percentage have been decreased, and on the extent to which they were lowered. In very slow and moderate changes, it is possible that no response may be evoked. They add that possibly the respiratory center, by virtue of greater sensitiveness, may react so much to the stimulus that the increase in respiration for a time cares adequately for the oxygen requirement of the body. In the more rapid decrease in oxygen tension, the respiratory and cardiac centers and very likely the vasomotor centers are stimulated at higher oxygen tensions and at about the same time. Consequently, under some conditions these two mechanisms serve almost equally to care for the oxygen need of the body. Evidently the problems of life at high altitudes must be considered somewhat separately for the various modes of ascent and sojourn in the upper reaches of the air. The slow progress of the Duke of the Abruzzi to a height of 24,580 feet in the Himalayas, and the more rapid rise of Glaisher to an altitude of 30,000 feet in a balloon, have already been far surpassed by the swift record altitude ascents of the modern aeroplane, to which neither sea nor land any longer bars the way.

THREE EARLY EPIDEMICS OF INFLUENZA

The history of epidemic influenza is a record of devastation and distress. The earliest record of influenza in America was made by William Hubbard:

> In the year 1647 an epidemical sickness passed through the whole country of New England both among Indians, English, French and Dutch. It began with a cold and in many was accompanied with a light fever. Such as bled, or used cooling drinks, generally died; such as made use of cordials, and more strengthening, comfortable things, for the most part recovered.

This is cited by Guy Hinsdale, whose contribution to the Osler memorial volume is a record of the epidemics of influenza in 1647, 1789 and 1807, as recorded by Noah Webster, Benjamin Rush and Daniel Drake. Noah Webster, in addition to publishing his famous dictionary, was also the author of a "Brief History of Epidemic and Pestilential Diseases." In this book, published in 1799, Webster described forty-four instances of influenza, dating in Europe from 1174 and in America from 1647. All of these epidemics are associated with earthquakes, volcanic eruptions, comets, droughts and similar disturbances of nature. Thus Webster notes under the year 1647, "First catarrh mentioned in American annals. The same year with violent earthquakes in South America, a comet."

The epidemic of 1789 was described by Benjamin Rush, who, as Dr. Hinsdale says, had the unusual faculty and patience to set down the minute details of cases as they came under observation. Dr. Rush's account, which is reproduced verbatim, reveals a remarkable parallelism between the epidemic of 1789-1790 and that of 1918-1919. It includes a classic description of the sneezing, hoarseness and sore throat; the sense of weariness, chills and fever, pains in the head and infection in the frontal sinus. "Many complained of a great itching in the eyelids. In some the eyelids were swelled. In others, a copious effusion of water took place from the eyes." Rush also describes mastoiditis, distressing cough and the final pneumonia, and the occurrence of secondary nervous and mental disturbances consequent on the disease.

Twenty-seven years after the epidemic described by Benjamin Rush, there occurred another epidemic which was described by Daniel Drake, who was acting as an army surgeon to two regiments of militia in camps when the influenza swept down from the "East to the frontier post in the Ohio Valley where he was stationed." He describes the way in which the disease first attacked the men in his camp, secondarily, the towns surrounding, and finally the scattered inhabitants of the country districts. "I need not give the history of any other prevalence," he says, "as this illustrates the most constant of the laws which govern influenza: first, its progressive extension from east to west; and second, its independence of all sensible conditions of atmosphere; third, its first outbreak in bodies of men, and compact settlements." Drake closes his account by mentioning the occurrence of purulent pleural effusions as the most serious sequelae.

In connection with these reports, we may point out that, allowing for the lack of knowledge of bacteriology and modern pathology, these early observers noted practically all of the important facts concerning this disease. Their reports are vital evidence of the importance of close, systematic observation in the practice of medicine.

Current Comment

ANOTHER WATER SUPPLY "ACCIDENT"

A recent report[1] of the typhoid outbreak at Lansing, Mich., in March, 1919, illustrates once more the necessity of caring for the surroundings of public water supplies from deep wells. The Lansing outbreak was apparently caused by leakage of sewage-contaminated ground water into the good water in the wells. It is stated that no thorough and regular investigations had been made of the lead joints between suction pipes and casings, and that the piping was under water much of the time. In March of last year, heavy rains caused the Grand River to rise eight feet, the pressure from this source forcing concentrated sewage into the sandy soil around the wells. An extensive outbreak of intestinal disturbance followed almost immediately, 3,000 cases of so-called water-borne dysentery being caused. Following this, eighty-two cases

1. Engineering News Record **84**: 92, 1919.

of typhoid developed, resulting in eleven deaths. This "accident," due to neglect of the surroundings of a good artesian water, is almost exactly similar to the extensive outbreak at Rockford,[2] eight years ago. Information about the cause of the Rockford outbreak and similar water-borne epidemics has been available for a number of years in the various technical journals dealing with water supply. It seems strange that such disasters can still occur, since every responsible engineer must be well aware of the necessity for safeguarding the casings and suction wells wherever a deep well supply is used as a drinking water source.

THE 1920 INFLUENZA

The outbreak of influenza in the United States which began about the middle of January has now progressed far enough for its main characteristics to be plainly seen. It is noteworthy that the death rates from influenza and pneumonia in the large cities were below the usual average all over the country from May, 1919, to Jan. 1, 1920. The first marked change seems to have occurred almost simultaneously in Kansas City and in Chicago, where the influenza-pneumonia rates rose sharply in the week ending January 17, although in Chicago an excess over the average was not reached till some days later. The maximum mortality in Chicago occurred in the week ending January 31, but in Kansas City the mortality reached its height a week later. New York, Washington, San Francisco, Milwaukee and St. Paul all showed an increase in the week ending January 24, and many other cities were added to the list in the following two weeks. The Census Bureau report for the week ending February 14 showed that thirty-two out of the thirty-six large cities reporting had a largely increased death rate from influenza and pneumonia as compared with the February weekly average in 1917. The same report states that the number of death claims per thousand policies in force (42, 300 and 241) in industrial insurance had increased in the annual rate from 10.3 for the week ending January 24, 10.9 for the week of January 31 and 13.0 for the week of February 7 to 14.1 for the week of February 14. The relative severity of the 1920 influenza is difficult to estimate correctly at this time. If it is possible to repeat in several well chosen localities the exact enumeration of morbidity and mortality secured in a few places by the U. S. Public Health Service in 1918, there will be better opportunity for a judgment on this point. It is worth noting, however, that in several cities, Milwaukee, Minneapolis and Kansas City, for example, the total death rate was considerably higher in the week ending Feb. 7, 1920, than it was at any time during the 1918 epidemic. In Chicago the death rate, while not as high as in October, 1918, rose to a point far above that reached during the 1889-1890 influenza outbreak. Although the total mortality in Chicago for the first half of January was considerably lower than the mortality for the average of the corresponding weeks of 1913-1917, the influenza in the last two weeks of the month brought the total January mortality to 5,149, much the highest monthly mortality in the history of the city with the single exception of October, 1918, when influenza raged through the whole month. In Detroit, likewise, the epidemic has been severe. The weekly health reviews by the commissioner of health state that by the twentieth day of the epidemic there had been 1,161 reported deaths from influenza and pneumonia, as compared with 836 for the corresponding period in the 1918 epidemic. Up to the present writing the chief prevalence of the disease has been in the Middle West. According to the reports of the U. S. Public Health Service made by state health departments, Illinois has had the largest number of cases. Kansas, Wisconsin, Minnesota and California have also reported several thousand cases each. In the East, Connecticut and New Jersey had reported by January 31 a relatively large proportion of cases. It seems reasonable to suppose that most communities, at all events the larger cities and towns that have not already experienced an influenza outbreak in 1920, will have some recurrence of the disease. The impression seems to be in general that the disease is milder in its symptomatology and that the rate of incidence is considerably lower.

2. Jordan, E. O.: The Rockford (Ill.) Typhoid Epidemic, J. Infect. Dis. **11**:21, 1912.

PHARMACY BY ACT OF CONGRESS

The school of political thought that holds to the *laissez faire* doctrine sometimes described as Manchesterism has always pooh-poohed the idea that it is possible to make men moral by statute. Should the present national experiment in prohibition be successful it will give the Manchester doctrine a body blow and do much to make "morality by act of Congress" an established fact. This same experiment is, apparently, bringing about even greater wonders. For, insolvable problems—as we have been led to believe—in the field of pharmacy have been solved within the short time that the Eighteenth Amendment to the Constitution of the United States has been in being. For years the gentlemen who have waxed rich and socially and politically powerful from the sale of those "patent medicines" whose most potent and powerful ingredient was alcohol have assured us with all the earnestness at their command that the alcohol in their nostrums was really but a regrettable incident in the manufacture. Alcohol has always been used in such cases, we were assured, for solvent, preservative or extraction purposes and occasionally "to prevent freezing"! Consider the case of a "patent medicine" more or less familiar to the readers of THE JOURNAL—"Wine of Cardui." This woman's tonic which, before the days of the Food and Drugs Act, was "a Certain Cure" and "Nature's Great Emmenagogue" later admitted (as per the law's requirements) the presence of alcohol to the extent of 20 per cent. Repeated and exhaustive experiments by some of the best chemists and pharmacologists in the country conclusively demonstrated that the alcohol was the most powerful and active drug in it. THE JOURNAL'S first extended article on this product brought the claim from the manufacturers that no more alcohol was used than was "needed as a solvent and preservative" and the further declaration that they had "employed leading chemists who

have sought widely for another preservative, but without success." In the court action that followed THE JOURNAL'S exposés the Wine of Cardui concern again emphasized its inability to diminish the amount of the alcohol. As the company's attorney said in his opening statement, Wine of Cardui had been submitted to one of the great chemists in the United States "for the purpose of ascertaining whether or not any other solvent or preservative could be used rather than alcohol." This great chemist "found that 20 per cent. of alcohol was the exact amount that would answer the purposes and that anything substantially beneath that amount would make the medicine spoil and would no longer act either as a solvent or as a preservative." "Wine of Cardui" continued to contain 20 per cent. of alcohol—the irreducible minimum, according to the manufacturers; an unnecessarily large amount, according to the medical profession. Then came national prohibition. Today Wine of Cardui contains 10 per cent. alcohol and its preservative powers have been fortified by the addition of benzoates. Verily, the wonders of science are as nothing to the marvels of legislation!

TISSUE CONSERVATION THROUGH THE ACTION OF QUININ

While there are numerous drugs and chemical substances that stimulate metabolism and lead to a breakdown of tissue and a corresponding waste of body material,[1] it is not easy to cite compounds that affect the organism in the direction of tissue conservation. One of the latter, however, is quinin. It has long been known that quantities of the drug too small to have marked pharmacodynamic effects may decrease the disintegration of nitrogenous compounds in the body. The output of urea is diminished after administration of the alkaloid to persons on a constant diet, without any impairment of absorption from the alimentary tract. It has even been suggested that the antipyretic action of quinin is in essence due to the lessening of metabolism and consequent diminution in the amount of heat liberated in the body. Whether or not the fall of temperature often induced by the drug is due to lessened heat production is not positively determined. Hence every evidence bearing on the effects of quinin is still of importance. When a bird produces eggs, it separates from itself a considerable amount of protein for the formation of the egg white and egg yolk. At the Station for Experimental Evolution at Cold Spring Harbor, N. Y., Riddle and his associates[2] have apparently demonstrated that the amount of albuminous substance expended by the body in egg production is decreased under the influence of quinin. In their experiments with it on ring-doves, less than the normal content of nitrogenous compounds was released by the albumin-secreting gland of the oviduct during egg production, thus furnishing an added illustration of the protein-conserving effect of the alkaloid, which is unique also in other ways.

1. Illustrations are given by Higgins, H. L., and Means, J. H.: J. Pharmacol. & Exper. Therap. **7**: 1, 1915.

2. Riddle, Oscar, and Anderson, C. E.: Am. J. Physiol. **47**: 92 (Sept.) 1918. Behre, E. H., and Riddle, Oscar: The Effect of Quinine on the Nitrogen Content of the Egg Albumen of Ring-Doves, ibid. **50**: 364 (Dec.) 1919.

Association News

THE NEW ORLEANS SESSION

The Scientific Exhibit

The Scientific Exhibit at the New Orleans session will be located on the third floor of the Hutchinson Memorial Building, the Medical Department of Tulane University. Ample space has been provided for exhibits in the large laboratories, while the halls afford abundant wall space for charts, diagrams, photographs and placards. The amphitheater on this floor is equipped with projection apparatus, screens, etc., and will be used for the demonstration of roentgenograms, lantern slides and moving picture films suitable for the Scientific Exhibit. If sufficient material is offered, a continuous program will be arranged for the four days of the session. Applications for space in the Scientific Exhibit or for assignment on the program of the moving picture exhibit should be sent at once to the Director of the Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago, stating the character of the exhibit, the amount of space or time required, and the name of the individual or institution wishing to make the exhibit. As space will be assigned shortly after March 1, applications should be made at once.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

State Society Meeting.—The Medical Society of the State of California will meet, May 11, 12 and 13, at Santa Barbara instead of at Delmonte, as at first planned. Headquarters will be at the Hotel Ambassador.

Physician Arrested.—Dr. Amos J. Landis of Chico has been arrested on a charge of violating the state drug laws by the illegal sale of narcotics.——A. F. Francis of Oroville was arrested on the charge that he is not a physician and is practicing without a license.

Personal.—Dr. James H. Barr, Marysville, health officer of Yuba County, and Dr. A. L. Miller, health officer of Yuba City, have been appointed assistant collaborating epidemiologists by the state board of health.——Dr. Walter M. Dickie, Los Angeles, has been appointed director of the bureau of social hygiene of the state board of health.

Illegal Practitioner Charged with Manslaughter.—Mrs. Gertrude Steele, a naturopathic physician of Venice, is charged with manslaughter and with practicing outside the limits of her certificate. She was arrested following the death of her son-in-law, George A. Blaha of Venice, who was treated by Mrs. Steele with a freckle lotion which is said to have caused his death.

Bureau of Child Hygiene.—The bureau of child hygiene of the state board of health became an entity following the passage of a law at the last legislature. Dr. Ethel M. Watters, San Francisco, who formerly had charge of the juvenile court children in San Francisco and for two years was sanitarian of the social hygiene bureau of the state board of health, was appointed director.

Diploma Lost.—Early in January, 1920, a diploma issued to Dr. William Hammond Worley by the Hahnemann Medical College and Hospital, Chicago, April 26, 1900, was reported to have been lost by the Railway Express Company in Los Angeles. Officers of all state licensing boards are requested to be on the lookout for such a diploma, since it may have been stolen.

Sun Cult Leader Arrested.—Ottoman Zar-Adusht Hanish, self-styled "little master" of the Mazdaznan cult of sun worshipers, Los Angeles, has been arrested by the Board of Medical Examiners on charges of grave offenses against

minor children. In 1913, Hanish was convicted in the federal district court of sending indecent matter contained in his cult book, "The Inner Circle," through the mails, and was sentenced to six months in jail. April 25, 1918, Hanish was charged with practicing medicine without a license, at which time he vanished.

League for Conservation of Public Health.—The league will survey all the hospitals in the state and will soon promote a state conference of hospitals to discuss problems which will be brought up as a result of the survey. Only those hospitals, whether large or small, which have been adhering to a high standard of service, will be included in membership. The third annual meeting of the league was held in San Francisco, Dec. 29, 1919, and the following officers were elected: president, Dr Dudley A. Smith, Oakland, and vice president, Dr. Granville McGowan, Los Angeles.

COLORADO

Social Service at University.—The Association of Collegiate Alumnae has taken charge of the medical social service of the University of Colorado dispensary and clinic, Denver, has organized a corps of volunteers for such service, and has placed in charge of the social service, Miss Madeline C. Ridgeway, formerly of Chicago.

Influenza.—The University of Colorado, Denver, which was closed for two weeks on account of an epidemic of influenza, reopened February 16.——The Denver *Post* announces that it will pay $25,000 to the physician finding a cure for influenza, the money to be paid after the cure has been approved by the Rockefeller Institute for Medical Research and Johns Hopkins University.

Tuberculous Persons Should Not Leave Home.—The Denver Anti-Tuberculosis Society has issued a leaflet entitled "Why Tuberculous Persons Without Funds Should Not Leave Home." This leaflet gives a consensus of opinion of the tuberculosis workers of Denver in regard to sending indigent tuberculous sufferers West. It is estimated that several hundred tuberculous persons without funds come to Denver every year and arrive almost penniless and without provision for their needs. Since Colorado has no state sanatorium and Denver no municipal sanatorium, the care of such persons is limited to a few free private sanatoriums which are continuously overtaxed. The society urges that states throughout the country plan definite programs to retain their indigent tuberculous patients, giving them effective treatment in state sanatoriums or in their own homes.

ILLINOIS

Sanatorium Changes Hands.—The Mennonite Sanitarium Association has purchased the Kelso Sanitarium property, Bloomington, and will conduct its hospital operations on an enlarged plan.

More Money for Speedway Hospital.—On February 20, the United States Senate adopted an amendment to the urgent deficiency bill adding $500,000 to the limit of cost of the Speedway Hospital.

Personal.—Dr. William F. Carroll, New Holland, who has been seriously ill with influenza has recovered.——In the case of Dr. Pierre J. Fullerton, Dupo, against St. Clair County in which he sought to collect $350 alleged to be due him for treating indigent smallpox patients, the jury returned a verdict in favor of the county on the ground that Dr. Fullerton had not been authorized to treat the patients.

Chiropractor Arrested.—According to report, Frank D. Whittenberg, a chiropractor living at Mt. Carmel, was arrested for practicing medicine without a license. Whittenberg claims that State's Attorney Phipps of Wabash County told him to go ahead and practice without a license. Whittenberg is now reported to have not only discontinued practice but also to have sold his office fixtures and left the state.

Forged Prescriptions for Whisky.—A recent investigation by the Illinois Department of Registration and Education shows that persons in Chicago are writing prescriptions for whisky on regular prescription blanks and forging the signature of Dr. John W. Sarpalius, a licensed physician in Illinois. Dr. Sarpalius left Illinois some months ago and now resides in Alden Station, Pennsylvania. On leaving Chicago, he left behind a number of prescription blanks with his name and address printed thereon. These blanks were taken from his Chicago office and are now being used extensively for whisky prescriptions. An inspector picked up thirty-four in two drug stores in Chicago. Each called for a pint of whisky for use "as directed." The department has no jurisdiction over the writing of whisky prescriptions, but they were turned over to Major Dalrymple in Chicago for investigation.

Chicago

Personal.—Dr. Ludvig Hektoen has been elected an honorary member of the Pathological Society of Philadelphia.

Midwife Fined.—Mrs. Anite Salvino, a midwife, was fined $25, February 19, for failure to apply silver nitrate to the eyes of a baby in her care.

Municipal Sanatorium.—The January issue of the *Bulletin of the City of Chicago Municipal Tuberculosis Sanatorium* contains a detailed description of the vocational school for the tuberculous, by Dr. John Dill Robertson, profusely illustrated.

Institute of Medicine Meeting.—A meeting of the Institute of Medicine of Chicago will be held March 5, at the City Club, 315 Plymouth Court at 8 p. m. Prof. James R. Angell of the National Research Council will speak on "The Organization of Research in a Democracy."

Reception and Dinner to Admiral Braisted.—Surg.-Gen. William C. Braisted of the United States Navy, President-Elect of the American Medical Association, will read a paper before the Chicago Medical Society at its meeting, Wednesday evening, March 3. A reception and dinner at the Palmer House at 6 p. m. will be tendered him previous to the meeting to which all members of the Association are cordially invited.

Fraternity Dinner.—The Alpha Omega Alpha Honorary Medical Fraternity announces that the annual dinner of the three Chicago chapters located respectively at the University of Illinois, University of Chicago, and Northwestern University, will be held March 1, at the Congress Hotel, at 6:30 p. m. Among the speakers will be Dean Irving S. Cutter, Omaha, of the University of Nebraska, Dean John L. Heffron, Syracuse, of Syracuse University and Dr. William W. Root, Slaterville Springs, N. Y.

Druggist Arrested for Practicing Medicine.—Joseph P. Baltrenas who owns a drug store at 1705 South Halsted Street, is reported to have been arrested recently for practicing medicine without a license and was fined $200 and costs. Baltrenas had in his possession a license as a physician issued by the state board of health in 1916, but the name of the physician had been erased and that of Baltrenas substituted. An inspector of the Department of Registration and Education recognized that it was fraudulent. It later developed that the license had been stolen from the office of Dr. Ralph Waldo Petersen. Baltrenas claimed he had paid a certain "senator" $3,500 for the license.——Three other cases against Baltrenas will be heard in March; one for buying a license, one for aiding and abetting in the purchase or sale of a license and still another for practicing under a license fraudulently obtained. The maximum fine for each offense is $200 or one year in jail, or both.

IOWA

New Officers.—Northwest Iowa Medical Society at its annual meeting in Sheldon elected Dr. Louis L. Corcoran president and Dr. Jay M. Crowley secretary, both of Rock Rapids.——Hardin County Medical Society at its annual meeting at Eldora elected Dr. J. Willard Caldwell, Jr., Steamboat Rock, president; Dr. William H. VanTiger, Eldora, vice president; Dr. William E. Marsh, Eldora, secretary, and Dr. Clarence M. Wray, Iowa Falls, treasurer.

KANSAS

Personal.—Dr. Louis B. Gloyne, who has been serving as health director of Kansas City, has been made city physician.

New Officers.—Brown County Medical Society held its annual meeting in Horton, January 6, and elected Dr. Roscoe T. Nichols, Hiawatha, president; Dr. James S. Rushton, Morrill, vice president, and Dr. James M. Robinson, Hiawatha, secretary-treasurer.

Venereal Disease Activities.—During the period from July 1, 1918, to Dec. 30, 1919, there were reported to the division of venereal disease of the state board of health 3,311 cases of gonorrhea, 1,405 cases of syphilis and fifty-four cases of chancroid. Treatment has been provided through clinics located at Wichita, El Dorado, Topeka, Lawrence, and Rosedale, and a clinic is expected to be in operation this month at Kansas City. At these clinics 537 cases of gonorrhea, 745 cases of syphilis and twenty-four

cases of chancroid have been treated. In connection with the University Medical School at Rosedale, a public health laboratory has been maintained which has furnished an average of 500 Wassermann examinations a month since its establishment, Jan. 1, 1919. At the quarantine camp established at Lansing, twenty-one men and 340 women were detained in 1918, 157 men and 258 women in 1919.

KENTUCKY

Libraries Consolidated.—The libraries of the medical department of the University of Louisville and of the Jefferson County Medical Society have been consolidated and will be housed at the medical college.

Eye and Ear Men Elect.—The Louisville Eye and Ear Society at its annual meeting, January 8, elected Dr. Claude T. Wolfe, Louisville, president; Dr. Albert L. Bass, Louisville, vice president, and Dr. Walter Dean, Louisville, secretary-treasurer.

Contract Let for Government Hospital.—The Dawson Springs Construction Company has received the contract for the construction of three main buildings of the $1,500,000 governmental hospital at Dawson Springs. The hospital will be used to take care of discharged soldiers, sailors and marines. This contract is for the erection of a hospital building, an administration building and a nurses' home and the combined cost will be $680,666.

Personal.—Col. Dunning S. Wilson has been discharged from the Medical Corps, U. S. Army, and has returned to Louisville.——Dr. Randolph Dade, Jr., has succeeded Dr. John W. Harned, resigned, as health officer of Hopkinsville. ——Dr. Daniel V. Bentley, Whitesburg, is reported to be critically ill with cerebrospinal meningitis.——Dr. Lester A. Crutcher, Louisville, has resigned to accept a position with the Kentucky State Board of Health, and has been succeeded by Dr. Louis A. Mehler, Louisville.——The Jefferson County court jury has refused to indict Dr. Christopher G. Schott, Louisville, who was charged with murdering his office assistant.

Nutrition Survey.—The big gray automobile known as the Child Welfare Special which the Children's Bureau of the United States Department of Labor is using to bring the welfare message to babies in villages and on farms, has been cooperating in the nutrition survey in one of the rural sections of Kentucky. The county selected was in the mountain district, 250 cases were studied, and it is hoped that the examinations will reveal the causes responsible for the malnutrition prevalent in this area. The information was obtained by a house-to-house canvass and the examinations were made by the staff of the Child Welfare Exhibit in an automobile truck fitted as a model well-baby clinic with a government physician and nurse in charge. The car is parked in a central location, usually near a court house, town hall, lodge hall or woman's club. One family at a time is received in the car, the health history of the family is secured, each child is examined, weighed, and measured, and advice is given to the mother in hygiene matters.

LOUISIANA

Ground Broken for Hospital.—Construction work on the new Presbyterian Hospital, New Orleans, has been begun. The new building will be three stories in height, but eventually other stories, up to ten, will be added.

Personal.—Dr. Joseph G. Stulb, New Orleans, visiting physician to the Isolation Hospital has resigned.——Dr. Mayer A. Newhauser, New Orleans, has succeeded Dr. G. C. Chandler as president of the board of health of Shreveport.

Laboratory Item.—Dr. Abraham L. Metz, city chemist, has tendered the use of his new chemical laboratory to the city of New Orleans, and it was formally dedicated to the city's use, February 1. The plant represents an outlay of $15,000 and includes a library of 1,000 volumes.

New Officers.—At the annual meeting of the Rapides Parish Medical Society held at Alexandria, February 5, Dr. Paul K. Rand, Alexandria, was elected president and Dr. George Antony, Alexandria, secretary-treasurer.——Calcasieu Parish Medical Society at its annual meeting, Dec. 31, 1919, adopted a resolution authorizing appointment of a committee to enter into negotiations with the state board of health regarding the establishment of a public laboratory in Lake Charles. Dr. John G. Martin, Lake Charles, was elected president, Dr. Cecil R. Price, De Quincy, vice president, and Dr. Dempsey C. Iles, Lake Charles, secretary-treasurer.

MASSACHUSETTS

Personal.—Dr. Fred D. Jones, Springfield, has been appointed medical examiner (coroner) of the second Hampden, district, succeeding Dr. Edward J. Mahoney, Springfield, resigned.——Dr. Frederick R. Barnes, Jr., Fall River, has been appointed associate medical examiner (coroner) of the third Bristol district, succeeding Dr. John H. Gifford, resigned.——Dr. Llewellyn H. Rockwell has been appointed acting superintendent of the Long Island Hospital during the absence of Dr. Charles E. Donlan.——Dr. Samuel B. Woodward was reelected vice president of the Worcester Chamber of Commerce at its meeting, January 20.——Dr. William T. Sedgwick, senior professor in the Massachusetts Institute of Technology and head of the department of biology and public health, will be the first exchange professor with the universities of Cambridge and Leeds.——Dr. Oren M. Deems, Springfield, is reported to be seriously ill with pneumonia.

MICHIGAN

Personal.—Dr. Albert C. McLeod, Calumet, has just returned after five years' service in the Royal Army Medical Corps.——Dr. E. Charles Hughes, Armada, has been appointed superintendent of the Burley Hospital, Almont.

Industrial Earnings.—According to the published report made at the annual meeting of stockholders, Parke, Davis & Co. earned net profits of $4,293,591 for 1919. The sales for the year were approximately $25,000,000. The gross profits were $6,604,702 and of this $2,000,000 was reserved for excess profits and income taxes and $194,845 for depreciation.

Venereal Disease Clinics.—Dr. Garner M. Byington, Charlotte, director of the bureau of venereal disease, announces that Battle Creek, Lansing, Kalamazoo, Jackson, Flint, Bay City, Saginaw, Detroit and Ann Arbor are operating venereal disease clinics in close cooperation with the bureau and that similar clinics will soon be established in Grand Rapids and Muskegon.

Cancer Publicity.—The entire December number of *Public Health*, the monthly news bulletin of the Michigan Department of Health, was devoted to cancer. The number was prepared in response to a belief that public sentiment must be thoroughly aroused and organized, and that scientific data on the cancer problem must be given to the public if results are to be obtained in the campaign for the eradication of cancer.

MINNESOTA

Personal.—Dr. Mabel S. Ulrich, Minneapolis, has been appointed health director of the northern division of the American Red Cross.

Decline in Mortality.—The division of public health of the board of public welfare, Minneapolis, in its last bulletin gives a résumé of the decline in the mortality from certain diseases since 1890. The deaths from typhoid fever per hundred thousand of population between 1891 and 1900 numbered 49; and in 1919, about 4; the deaths from diphtheria per hundred thousand of population from 1890 to 1899 averaged 0.43, compared to 0.165 in 1919; the deaths from tuberculosis per thousand population from 1890 to 1899 were 1.28, and in 1919, 0.97; and the death rate of infants under 1 year, which from 1900 to 1909 was 88.2 per hundred thousand, dropped in 1919 to 66.5.

MISSISSIPPI

Influenza.—On account of the spread of influenza all of the rural schools near Purvis, the town schools, and the Lamar County Agricultural School have suspended indefinitely and all public meetings have been interdicted.——The schools, churches and other public places of Hazlehurst and Wiggins have been closed for the same reason.

Home for Feebleminded.—The Mississippi society for mental hygiene is urging the passage of a bill calling on the legislature for an appropriation of $200,000 with which to prepare and maintain a home for feebleminded for the next two years. There are at present 1,317 feebleminded persons in the state, 205 of whom are in state insane hospitals, 90 in orphanages, 10 in the industrial training school, 14 in the state institution for deaf and dumb, 345 in county jails, 214 on county poor farms and 439 in the state penitentiary.

Mental Deficiency Survey.—The report of the Mississippi Mental Hygiene Commission to the governor, January 7, after an exhaustive report on present conditions regarding mental

deficiency in the state, recommends the establishment and organization of a state colony and training school for the feebleminded; the organization of special opportunity schools as a part of the public school system, these schools to emphasize training of the nervous system through the hands; the organization of mental clinics; at the disposition of every school, court and social agency someone specially trained in medical and social service as related to mental deficiency; the complete divorce of hospitals of the insane and the colony for the feebleminded from partisan politics and their organization under a state psychiatrist as director, and finally a system of state registration and state supervision of all mentally defective individuals.

MISSOURI

Graduate Instruction in Pediatrics.—Washington University, St. Louis, has established a course of graduate instruction in pediatrics to begin April 5. Particulars of this course may be obtained on addressing the dean of the school.

Semicentennial Ceremonies.—Jackson County Medical Society will honor with a dinner at the City Club, Kansas City, March 4, members who have practiced medicine a half century. Five members will be thus honored: Brig-Gen. Jefferson D. Griffith, Kansas City, who graduated from New York University Medical College in 1870; Dr. John C. Rogers, Kansas City, an alumnus of Washington University Medical School, St. Louis, in 1865; Dr. John Wilson, Kansas City, a graduate of the same school in 1866; Dr. John S. Mott, Kansas City, a graduate of the University of Michigan, Ann Arbor, 1867, and Dr. Thomas R. Thornton, Lees Summit, a graduate of Washington University, St. Louis, in 1868.

Personal.—Dr. Owen P. McPherson, Kansas City, has recently received the medal of the first order of St. Sava from the Serbian Government. Dr. McPherson was assigned to the American Military Red Cross Hospital, No. 5, in Serbia and afterward established two hospitals.——Dr. Robert Vinyard, St. Louis has been appointed assistant physician to the Frisco Hospital, Springfield.——Dr. George M. Boteler, St. Joseph, has been appointed assistant health officer of St. Joseph and placed in charge of the emergency and influenza hospital.——Dr. William D. Fulkerson, Clinton, for thirteen years local surgeon of the Rock Island System, has resigned and expects to retire to a farm near Catesville.——Dr. Fayette C. Ewing, Webster Groves, has moved to Alexandria, La., and has been appointed chief of the eye, ear, nose and throat department of the U. S. Public Health Hospital at that place.

MONTANA

Western Montana Physicians Elect Officers.—At the annual meeting of the Western Montana Medical Society held in Missoula, Dr. Harry B. Farnsworth, Missoula, was elected president; Dr. John P. Ritchey, Missoula, vice president, and Dr. James D. Hobson, Missoula, secretary-treasurer.

Personal.—Dr. Roscoe C. Main, formerly of Marquette, Mich., has succeeded Dr. Louis W. Allard, resigned, as health officer of Billings and Yellowstone County.——Dr. Frank D. Pease, Missoula, has been appointed full-time health officer of Missoula County and will assume his new duties, April 1.

Public Health Hospital for Mental Diseases.—A hospital for the treatment of mental diseases is being opened at Fort Harrison, Helena, by the United States Public Health Service. Dr. Arthur S. Pendleton is the officer in charge. The hospital will not be an insane asylum but is designed to care for men who have been mentally incapacitated in war service.

NEBRASKA

Meningitis at College.—Doane College and other schools in Crete have been closed and public gatherings prohibited because of an outbreak of cerebrospinal meningitis.

New Officers.—At the annual meeting of the Dodge County Medical Association, held in Fremont, January 1, Dr. Byron B. Hauser was elected president, Dr. James C. Agee, vice president and Dr. Grant S. Reeder, secretary-treasurer, all of Fremont.

Personal.—Dr. Jerome G. Pace, Lincoln, has been appointed superintendent of the Modern Woodmen of America Sanatorium, Colorado Springs, succeeding Dr. James A. Rutledge, deceased.——Dr. Floyd C. Dean, Hastings, formerly superintendent of the sanatorium at Hastings, has been appointed superintendent of the Kansas Sanatorium, Wichita, succeeding Dr. Robert L. Stokes, resigned.

NEW JERSEY

Changes in Sanatorium Management.—Commissioner Burdette G. Lewis of the Department of Institutions and Agencies, has made the following recommendations to improve conditions at the New Jersey Sanatorium for Tuberculous Diseases, Glen Gardner: a roentgen-ray examination of every patient admitted to the institution; the purchase of strictly fresh eggs and more careful adherence to the dietaries suggested by this department and approved by the federal bureau of foods and drugs; the employment of a trained social worker; the enlargement of the institution to accommodate enough patients to reduce the per capita cost of medical, scientific and social work, and to provide homelike surroundings including sitting rooms and play rooms for children.

NEW YORK

Mental Clinic Established.—The American Red Cross and health department of Plattsburg have started a mental clinic in that city under the charge of Dr. John R. Ross, medical superintendent of the Dannemora State Hospital.

Tuberculosis Survey.—A summary of the clinics which have been held in Oneida County under the auspices of the state department of health, by the State Charities Aid Association, shows that 1,287 patients were examined, of whom 214, or 16.6 per cent., were found positive, 390, or 30 per cent., suspicious, and 683 negative.

Tuberculosis Association Bulletin.—The first issue of the *Bulletin of the New York Tuberculosis Association, Inc.*, has made its appearance. It is an eight-page periodical having for its purpose the dissemination of knowledge for the information of all those interested or engaged in the fight against tuberculosis in New York City and elsewhere. Mr. David Ryan is managing editor.

Personal.—Dr. Reeve B. Howland, Elmira, has been reappointed health officer of Elmira for a term of four years.——Dr. Frederick M. Meader, Albany, director of the division of communicable diseases in the state board of health, has been granted an indefinite leave of absence in order to accept an appointment as surgeon in the United States Public Health Service. Dr. Edward S. Godfrey, Jr., has been appointed acting director of the division in the place of Dr. Meader.

New Organization to Fight Quackery.—A national cooperative service, under the name of the Doctors Service Corps, and including physicians, surgeons and dentists, has been organized for the detection and punishment of "dead beats," and as an intelligence service to operate against frauds. The movement is endorsed by Prof. Irving Fisher of Yale, Major A. R. Crane, formerly chief dental surgeon to U. S. Army General Hospital No. 1, and Herbert D. Brown, chief of the Bureau of Efficiency, Washington, D. C.

New York City

Meeting in Memory of Sir William Osler.—A meeting in memory of Sir William Osler is scheduled to be held February 28, at 8:30 p. m., in the New York Academy of Medicine.

School Hygiene.—The bureau of public health education, department of health has instituted publication of a monthly pamphlet, *School Health News*, for the information of school teachers.

Personal.—Dr. T. Mitchell Prudden, who has been a member of the Public Health Council since its inception, was recently reappointed by Governor Smith for a term of six years.——Dr. Elbert M. Somers, Brooklyn, has been appointed deputy medical examiner of the bureau of deportation by the State Hospital Commission.

Seamen's Service Center.—The Seaman's Service Center, operating under the direction of the Surgeon-General of the United States Public Health Service in cooperation with the Red Cross and volunteer agencies, was recently established for the purpose of assisting merchant seamen entering the port of New York. The center will be conducted as a clearing house for the sick, disabled and needy sailors of the merchant fleets of the world.

OHIO

Verdict for Physician.—In the case of Ralph Meyers against Dr. Corwin T. Hill, Akron, in which the plaintiff sought to recover $25,000 on claims that the defendant was

negligent in treating a fracture of the leg, a verdict in favor of the defendant was returned by the jury after a fifteen minute session.

County Health Commissioners.—Of the eighty-eight counties of the state, fifty have already organized under the Griswold act, and thirty-nine health commissioners have been appointed, twelve of whom are to serve full time. Twenty-five of the fifty counties have made provision for a public nurse, and thirty nurses have already been named.

Chiropractors Fined.—It is reported that Mike Klotz, a chiropractor residing at Akron, was fined $200 and costs in the municipal court of Cleveland for practicing medicine without a license.——A report also states that A. M. Hoch, chiropractor at Cleveland, was fined $500 and costs, and that M. Pottgeiser, a chiropractor of Cleveland, was fined $100 and costs on a similar charge.

Prosecutions During 1919.—A letter received from Dr. Herbert M. Platter, secretary of the Ohio state medical board, states that during 1919 thirty-two individuals were convicted for the illegal practice of medicine and four for the illegal practice of midwifery, and the certificates of seven physicians were revoked and one certificate was suspended. Fifteen other individuals against whom cases were pending left the state and for that reason were not brought to trial.

Personal.—Dr. Benjamin I. Harrison, Cleveland, has been awarded a traveling fellowship for one year by Western Reserve University. Dr. Harrison saw service with both the British and American Expeditionary Forces during the world war. He will initiate his studies at the University of Oxford, England.——Dr. William S. Warren, Jacobsburg, was seriously injured by the overturning of his automobile near Businessburg, February 3.——Dr. Chester M. Peters, Canton, has been appointed health commissioner of Stark County.

Hospital Items.—Plans for the $500,000 hospital to be erected at the Masonic Home have been approved by the trustees.——The plan, which has been under consideration for several years, for the erection of a joint tuberculosis hospital by the counties of Muskingum, Fairfield, Perry, Licking and Coshocton, has been abandoned so far as the Muskingum County commissioners are concerned.——The Massillon State Hospital has been granted an appropriation of $130,000 for a new hospital building and an industrial building. The present industrial building will be converted into a cottage. The capacity of the hospital will thus be increased so that 130 additional patients can be accommodated.

PENNSYLVANIA

Conference of Industrial Physicians and Surgeons.—The state department of labor and industry will convene the tenth conference of industrial physicians and surgeons in the state capitol, Harrisburg, March 25.

Philadelphia

Drive for St. Agnes' Hospital.—For the first time in its thirty-two years of existence, St. Agnes' Hospital will appeal to the public for funds in a drive for $500,000 to be inaugurated March 15.

Osteopaths Lose Test Case.—The first step in a test case brought to determine whether or not practitioners of osteopathy may prescribe and administer drugs to patients was lost by the osteopaths when Judge Martin in Quarter Session Court refused to grant a new trial to Philip S. Dailey and fined him $50 and the costs of prosecotion.

Personal.—Dr. Robert N. Keely has been appointed surgeon of the Philadelphia Nautical School's schoolship *Annapolis*.——Dr. Max R. Gabrio has been appointed chief resident physician at the Philadelphia Hospital for the Insane at Byberry to succeed Dr. James Allen Jackson, resigned.——Dr. Edgar Fahs Smith was unanimously offered the position of provost emeritus of the University of Pennsylvania by the board of trustees.——Dr. John F. X. Jones has been appointed a member of the surgical staff of St. Agnes' Hospital.

Influenza Fund.—The city council has passed a general appropriation bill by which $50,000 will be available for combating influenza or for use in any other health emergency. The director of public health and charities will expend the money, subject to approval of the mayor, president of council and chairman of the finance committee. The latest report indicates that influenza is decreasing: the number of persons taken ill in the twenty-four hours ending at noon February 19 was 176 as compared with 219 on the preceding day, with 100 deaths from influenza, pneumonia and complications.

CANADA

Medical Building for University.—The United States Consul at Calgary, Alta., reports that a new medical building to cost $750,000 is to be erected for the University of Alberta. The plans have already been prepared and the construction will be commenced as soon as weather conditions permit.

Disease Record of Ontario.—There were almost 2,000 fewer deaths from communicable disease in Ontario during 1919 than in the previous year. Although more than 3,000 cases of smallpox were reported only nine deaths were recorded. Diphtheria caused 428 deaths and tuberculosis showed a slight increase, 2,234 cases and 1,722 deaths, as compared with 2,122 cases and 1,359 deaths in 1918.

Mental Hygiene Survey.—The Canadian National Committee for Mental Hygiene which was organized in April, 1918, has already conducted mental hygiene surveys in British Columbia, Manitoba, and Guelph, Ont. Governmental requests have been made for surveys during 1920 by the provinces of Alberta and New Brunswick, and the cities of Fort William and Port Arthur, Ont., while surveys are now in progress in Toronto and Ottawa, Ont., and Montreal, Que.

Postgraduate Course in Public Health Nursing.—In cooperation with the Victorian Order of Nurses and the public health, charitable and philanthropic organizations of Halifax and Dartmouth, Dalhousie University has inaugurated a course in public health nursing limited to graduate nurses. The Nova Scotia branch of the Canadian Red Cross Society has provided twenty scholarships of a value of $200 each. Lectures will be given chiefly by members of the medical faculty, and will deal with every phase of public health nursing. These courses will be augmented by eighteen hours of field work each week in social service, prenatal hygiene, infant welfare and school medical inspection service, by attendance at public clinics and by visits to all hospitals, industrial schools and health and social centers in Halifax. Upon successful completion of the full course of six months, a certificate of proficiency will be awarded to candidates.

GENERAL

Duty on Scientific Apparatus.—The Senate Committee on Finance has approved the bill placing a duty of 45 per cent. on imports of surgical and scientific instruments and laboratory glassware. There was no opposition to this bill before the committee.

New England Medical Women Elect Officers.—At the annual reunion and banquet of the Medical Women of New England, held in Boston, January 17, Dr. Agnes C. Vietor was reelected president; Dr. Margaret L. Noyes Kleinert, vice president; Dr. Alice H. Bigelow, secretary, and Dr. Isabel D. Kerr, treasurer, all of Boston.

Transportation for Railroad Surgeons.—Physicians who act in a professional capacity for railroads will continue to have the privilege of free railroad transportation. The clause in the railroad bill as it passed the House of Representatives, which would forbid free transportation to physicians, has been eliminated by the conference committee.

Hospital Society Enlarged.—The National Methodist Hospital Association at its meeting in Chicago, February 12, voted to include homes for aged and for dependent children in its organization. Plans for cooperation with the interchurch world movement were discussed, giving over an item of $100,000,000 in the budget for Methodist hospitals. Mr. E. S. Gilmore, superintendent of the Wesley Memorial Hospital, Chicago, was reelected president, and M. C. England, Cleveland, vice president.

Board for Ophthalmic Examination.—The next examination of the American Board for Ophthalmic Examinations will be held in New Orleans, April 26, at the time of the meeting of the American Medical Association. Applications and necessary credentials of candidates who desire to take the examination and obtain the certificate of the board should be in the hands of the secretary, Dr. William H. Wilder, 25 East Washington Street, Chicago, at least sixty days before the time set for the examination.

Health Work in Colleges and Universities.—In connection with the annual Conference on Public Health and Legislation called by the Council on Health and Public Instruction of the American Medical Association at the Auditorium Hotel,

Chicago, on March 4, 1920, Dr. John Sundwall, university health officer for the University of Minnesota, and Dr. Warren E. Forsythe, director of the university health service of the University of Michigan, have issued a call for all persons interested in health work in colleges and universities to attend a special meeting to be held at some convenient time during the conference to discuss special features of such work and possibly to effect an organization and arrange for meetings in the future. The time and place of the meeting will be announced at the conference.

Appropriations for Public Health Service.—In the emergency deficiency bill which has just passed the Senate, there is an appropriation of $3,000,000 for medical, surgical and hospital services for war risk insurance patients of the Public Health Service. The expenditure of this money is made immediately available to care for the work of the Public Health Service in behalf of former service men of the Army and Navy. There is also included in this bill provision for the final purchase of the Broadview Hospital—Speedway—at Chicago, Ill. This hospital will be used by the Public Health Service in the care and treatment of war risk insurance patients. Three million dollars has been appropriated heretofore for the purchase of this hospital and an additional sum of $500,000 is necessary to complete the construction of the hospital and make it meet the needs and purposes of the Public Health Service.

Philippine News.—The municipal council of Manila has approved an appropriation of 25,000 pesos (about $12,500) to furnish free of cost condensed milk to indigent children during the year 1920.——There has been held recently at Batangas, the capital of the province of the same name, the meeting of the physicians of the twentieth sanitary district. The district sanitary director, Dr. José M. Raymundo, presided, and the meeting was attended by some of the most prominent Filipino physicians, including the director of public health, Dr. V. de Jesús, Drs. P. Gabriel and J. B. Cabarrús.——Plans are being made for the construction of a municipal hospital at Tondo at an estimated cost of 1,000,000 pesos (about $500,000).——The following appointments have been announced: Dr. José Avellana Basa to be physician in chief of the Culión leper colony; Dr. Guillermo S. Sisón to be president of the thirteenth sanitary district division of Pangas; Dr. Fernando Calderón to be member of the board of trustees of the University of the Philippines, and Drs. José P. Bantug, Otto Schobl and Proceso Gabriel to act as a committee to report on the convenience and mode of enforcing anticholera vaccination in the Philippines.

The Dye Industry Bill.—Physicians, as well as chemists, are interested in the action of the Senate Committee on Finance in favorably reporting the dye industry bill. This is due to the fact that the manufacture of synthetic drugs is directly connected with the dye industry. The bill places import duties on dyes and an embargo on their importation, in order to encourage American laboratories to build up an industry which will be able to compete with the German monopoly heretofore dominating in the manufacture of synthetic drugs. The bill has already passed the House of Representatives. It provides a tariff of 30 per cent. on acetanilid suitable for medicinal use, acetphenetidin, acetylsalicylic acid, antipyrin, benzaldehyd, benzoic acid, betanaphthol, phenolphthalein, resorcin, salicylic acid and its salts, salol and other medicinals. The subcommittee held extensive hearings covering a period of several weeks, and important statements on the subject of the development and production of synthetic drugs by American laboratories were made by Dr. Marston T. Bogert, professor of organic chemistry of Columbia University, New York, and Dr. Julius Stieglitz, chairman, department of chemistry, University of Chicago.

Decennial Pharmacopeial Convention.—The United States Pharmacopeial Convention has issued the call for its tenth decennial meeting at 10 a. m., May 11, in Washington, D. C., at the Hotel Willard. One of the first and most important activities of the convention will be the election of fifty delegates who will constitute a committee on revision, to which will be assigned the task of determining the general principles to be followed in compiling the tenth revision of the pharmacopeia. The United States Pharmacopeial Convention is a corporation constituted of delegates elected by a number of organizations associated for the purpose of revising the United States Pharmacopeia every ten years. The interests of practitioners of medicine are conserved by delegates from the American Medical Association, the state medical associations, the medical colleges and the medical departments of the U. S. Army, U. S. Navy and U. S. Public Health Service. Each of these organizations should promptly select three qualified and competent delegates who will attend the convention and take active part in framing its policies. Because of the importance of the work and because of the great responsibility it entails, the medical profession should be properly represented. Forms for certifying the delegates to the convention are to be obtained by adderssing Dr. Noble P. Barnes, Arlington Hotel, Washington, D. C. These forms should be properly executed and the delegates reported to Dr. Barnes at least six weeks before the date set for the convention.

Legislation for Physical Education.—A bill for the promotion of physical education through cooperation of the federal government with the states has been introduced by Congressman Fess of Ohio. It provides for the employment of supervisors and teachers of physical education, including medical examiners and nurses. The work is to be conducted under the direction of the National Bureau of Education and the Public Health Service. The bill appropriates $10,500,000 for 1921, and $1 per year thereafter for each child of school age, the money to be apportioned to those states which shall appropriate on equal amount. Its provisions include a comprehensive course of physical activities, periodical physical examination, health supervision of schools, and schoolchildren; practical instruction in the care of the body and in the principles of health. The bill also provides for the establishment in the Public Health Service of a division of child hygiene. This bureau is to be in the charge of a commissioned officer of the Public Health Service who shall select other employees to assist him in his duties. These duties shall be to study and investigate the problems of child hygiene, to cooperate with state boards of health in medical research and practical administrative demonstrations relating to the health of women, children and to child bearing, and shall cooperate with the children's bureau of the bureau of education in matters relating to health conservation of children and mothers. An elaborate plan for cooperation with state authorities is formulated in the measure.

FOREIGN

Lister Memorial Institute.—The project which originated before the war for the establishment in Edinburgh of a memorial to the late Lord Lister has been revived. The memorial is to take the form of a scientific teaching and research institute under the auspices of the University of Edinburgh, the Royal College of Physicians and the Royal College of Surgeons of Edinburgh.

Statistics on Venereal Diseases in Germany.—The minister of the interior sent a questionnaire to all the physicians in Germany asking for the number of cases of venereal diseases in their charge between Nov. 15 and Dec. 14, 1919. The names of the patients were to be written on a perforated slip accompanying the questionnaire, but this was to be torn off and retained for the writer's information if need arises later.

Insane Aliens in Switzerland.—At the recent semiannual meeting of the Société des médecins aliénistes suisses a resolution was adopted asking the authorities for regulation of conditions in regard to alien insane. It has been found that many of the interned who required psychiatric treatment and were repatriated at the proper time, have returned to Switzerland, instances being known in which their home authorities paid their transportation back to Switzerland.

Personal.—Dr. Swale Vincent, since 1904 professor of physiology at the University of Manitoba, Winnipeg, has been appointed professor of physiology in the University of London, Middlesex Hospital, and will probably take up his new duties early in May.——Dr. Harold Pringle, lecturer on histology and assistant in physiology in the University of Edinburgh, has been appointed professor of physiology in Trinity College, Dublin, succeeding the late Sir Henry Thompson.

The International Pneumothorax Association.—The *Policlinico* announces that now, after the interregnum of the war, the international association entitled Pneumothorax Artificialis is to resume its work. The association intends to revive the international review, *Pneumothorax Thérapeutique*, founded by Forlanini, but for the present has made arrangements with *Tuberculosi*, published at Rome, which has agreed to summarize all the works on artificial pneumothorax as they appear in 1920. The secretary of the association is Prof. U. Carpi, Lugano, Italy.

French Children and the World War.—The effect of the war on the children of France is shown in a recent report submitted by the American Red Cross headquarters at Lille, based on the figures of the municipal bureau of hygiene. Before the war the city had a population of 200,000. The birth rate has shrunk from nearly 4,900 in 1913 to only 600 in 1918, and the figures by years indicate a loss of 15,000 births during the war. Since the armistice a survey has been made in all public and private schools to determine the number of children whose development has been retarded, and to place those with signs of tuberculosis in the care of institutions and welfare organizations. Of 18,000 children in the schools of Lille at the time of the armistice, over 6,000 had to be sent to hospitals or convalescent centers, 60 per cent. showed signs of arrested development, while about 40 per cent. gave evidence of glandular or pulmonary tuberculosis. In one typical school, out of 210 examined only one child was in normal health.

Deaths in the Profession Abroad.—Dr. **W. Schallmeyer** of Munich, whose work, "The Threatened Physical Degeneration of Civilized Races," won the Krupp prize in 1903, aged 62.——Dr. **Schottelius,** director of the Institute of Hygiene at Freiburg for many years, aged 70, has been missing since last September. He was visiting a lake resort when last seen.——Dr. **R. Stierlin,** professor of surgery at the University of Munich.——Dr. **A. Knoblauch,** aged 56, whose atlas of chronic diseases of the nervous system appeared in 1919. He was the constantly reelected president of the Senckenberg Society for Scientific Research at Frankfort.——Dr. **Hoffmann** of Heidelberg, author of various works on neurology, aged 62.——The cable brings word of the death of Dr. **E. Wertheim,** professor of gynecology and obstetrics at the University of Vienna, whose name is associated with operations for uterine cancer.——Dr. **Calatraveño,** a leading pediatrist, hygienist and medical editor at Madrid and honorary member of numerous scientific societies at home and abroad, aged 58.

LATIN AMERICA

Foot and Mouth Disease in Bolivia.—According to a cablegram received from Bolivia, foot and mouth disease is prevalent among the cattle of the department of Cochabamba.

Plague in Uruguay.—During the recent outbreak of the plague in Uruguay there were seventeen cases with two deaths, all of which occurred at Santa Rosa, department of Canelones, in October and November, 1919.

New Members of the Uruguayan Public Health Council.—Drs. Alfredo Vidal y Fuentes, José Mainginou and José Infantozzi have been appointed president and members, respectively, of the National Council of Hygiene of Uruguay.

Influenza in Mexico.—A cablegram from Mexico states that the epidemic of influenza continues to spread. In the Military School classes were suspended, and public business is suffering because of the absence of employees. The disease is of a mild type.

New Hospital for Panama.—Construction work on the new national hospital for Panama has been begun at El Hatillo, a high point facing the Pacific in a suburb of Panama. The hospital will cover a site of fourteen acres, and will be composed of eleven reinforced concrete buildings arranged in rectangular form, with accommodations for 600 patients. The construction is in charge of Major Edgar A. Bocock, M. C., U. S. Army, at present superintendent of the Santo Tomas Hospital, Panama.

Panama Nurses' Graduation.—At the graduating exercises of the Santo Tomas Hospital Training School for Nurses, January 31, diplomas were presented to the seven graduates by Major Edgar A. Bocock, M. C., U. S. Army, superintendent and director of the training school. Thirty-five selected pupils of Panamanian nationality form the school and during its three years of operation twenty-nine diplomas have been awarded to successful graduates, who are now found in several hospitals of South America.

International Sanitary Conference.—The sixth International Sanitary Conference of the American Republics will convene at Montevideo, Uruguay, Dec. 12-20, 1920. The invitations for the conference will soon be sent by the Uruguayan government, and the program will be issued by the International Sanitary Bureau in Washington, of which Dr. Rupert Blue, U. S. Public Health Service, is acting chairman. As indicated by Dr. E. Fernandez Espiro, the chairman of the organization committee, the chief subject for discussion will be the improvement of sanitary conditions in American countries.

Government Services

Health of the Army

For the week ending February 13, influenza continued to be reported from almost all the camps in decreasing numbers. The number of new cases of pneumonia following influenza is also decreasing. The death rate for disease is lower than for the previous week. Among the American forces in Germany, influenza and measles continued about the same, while pneumonia showed a slight increase. Among the American forces in Siberia, influenza and pneumonia were also prevalent.

Eighty-Ninth Division Medical Association

The officers who served with the Eighty-Ninth Division have formed an organization to be known as the Eighty-Ninth Division Medical Association of which Dr. Czar C. Johnson, Lincoln, Neb., is acting organization secretary. The purpose of the organization is to perpetuate the association of the 260 medical officers who at some time served with the division, by keeping a roster of membership and by a reunion at some central place each year for a professional and social meeting. The first reunion will be held in Kansas City, Mo., during the summer or early fall.

Medical Officers Over Fifty May Remain in Service

Senate Bill No. 3668 provides for the retention in service of certain "persons under the age of fifty years," who shall have served as officers of the medical, dental or veterinary corps in the United States Army, the National Guard in the service of the United States or in the National Army between April 6, 1917, and Nov. 11, 1918. It is suggested that, should the Senate do justice to the small number of officers now holding temporary commissions, who will be barred from entering the Medical Corps by reason of having attained the age of fifty years, an amendment be offered to the bill inserting after the words "fifty years" "or complete twenty or more years of commissioned service with regular troops before reaching the age of 64 years," etc. Under the present bill many valuable officers over fifty years of age will be eliminated from the Army.

Foreign Correspondence

LONDON

Feb. 7, 1920.

Medical Secrecy in Venereal Cases

Unlike the conditions in other countries, the English law recognizes the inviolability of the medical secret. The question has just arisen in a new form. During the hearing of an undefended suit for divorce brought by the wife, a physician was called on to give evidence that he had treated her for venereal disease. Adultery was proved, but in this country a woman suing for divorce must prove cruelty also. In this case the charge of cruelty was based on the communication of syphilis to her by the husband. A physician from the Westminster Hospital was called to prove that she was suffering from syphilis. Before giving evidence he handed the judge a letter from the chairman of the house committee stating that the hospital had adopted the national scheme for dealing with venereal disease and enclosing a copy of the statutory regulations, one of which enjoined absolute secrecy on the physician who attended the patient. The judge (Justice McCardie) said that the physician was one of those who were desirous of assisting the scheme for treating venereal diseases in every way, and for that purpose he wished loyally to maintain the secrecy which rightly rested on him. But in a court of justice there were even higher considerations than those that prevailed with regard to the professional position of physicians. Apart from the obligation that might be imposed on physicians by the judge, it was desirable that there should be a loyal observance of the confidence that was reposed in them by patients. He then ordered the physician to give evidence, which the latter did, showing the woman was suffering from syphilis. This ruling has not been received without criticism by the profession. Mr. H. W. Bayly, honorary secretary of the Society for the Preven-

tion of Venereal Disease, stated that he felt confident that his committee would agree that physicians should be protected from compulsion to "give away" their patients. There would never be an effective use of the clinics now provided unless the patients had complete confidence that their secrets would not be revealed. If he found himself in the same position, he would refuse to give evidence. This would make him liable to imprisonment for contempt of court but it is doubtful whether any judge would press the matter, as public sympathy would be against him. The *Lancet* also points out the detrimental effect of the ruling on the working of the venereal clinics.

The Influenza Epidemic

The most comprehensive account of the great influenza epidemic has been issued as a government report by Dr. Carnwith. He gives evidence to show that the epidemic originated in China and spread to America and thence to Europe. Glasgow in May, 1918, was the seat of the first outbreak among the civilian population. In June the disease reached England, and the summit of the first-wave occurred in the week ending July 13. The early cases were slight, the late ones severe. This was again seen in the autumn wave, the most terrible of all. The ports of Portsmouth, Southampton and Liverpool, which were affected first, suffered lightly. Inland towns suffered later and more severely. The subjoined table gives a comparison of the deaths in London with those in American towns from influenza and pneumonia (all forms) during eight weeks of the epidemic.

DEATHS IN LONDON AND IN AMERICAN CITIES

City	No. of Deaths	Rate 8 Weeks per 100,000 of Population
London	13,744	341
New York	20,681	360
Chicago	8,785	343
Philadelphia	12,806	749
Boston	4,211	548

The number of weeks intervening between the highest points of the summer and autumn epidemics were: London, 15; Liverpool, 14; Manchester, 20; Stockholm, 9; Copenhagen, 12; Chicago, 28. The age incidence showed curious changes. During the summer wave the ages most affected were 15 to 45. In the winter wave there was a considerable shifting toward the extremes of life and particularly toward the younger years. The susceptibility of young children was the subject of a special inquiry in London. Though the attack rate was below the average, the chances of recovery were less than in other age groups. Of breast-fed infants, 30 per cent. contracted the disease; of artificially fed, 54 per cent. The opposite, however, occurred in lying-in homes. An inquiry in Cheshire revealed that 25.4 per cent. of expectant mothers affected died, and of 118 expectant lives only fifty-seven survived. It does not appear that one attack was invariably powerful in protecting against others. The results are contradictory, but may be reconciled by the hypothesis that there are several strains of the influenza virus, and that these vary in virulence and antigenic potency. On this explanation, infection with one strain confers little or no protection against infection with others. Each wave seemed to have its peculiar dominant strain producing a certain wave individually.

The Fellowship of Medicine

At a meeting of the executive committee of the Fellowship of Medicine and Post-Graduate Association, at which Sir Humphrey Rolleston presided, a resolution was passed in silence recording the profound sorrow of the association at the loss of their president, Sir William Osler, without whose guidance and support success would have been impossible. A plan for the establishment of postgraduate courses was submitted by a special subcommittee and approved. Three series of courses are contemplated: 1. Postgraduate courses for general practitioners. A series of courses dealing with the various clinical subjects from the general practitioner's point of view, each lasting a fortnight or more, should be arranged by single institutions or by groups of institutions. These institutions would be of two kinds: (*a*) those, such as the existing postgraduate institutions, providing postgraduate instruction through the greater part of the year, and (*b*) those undergraduate schools which are willing to provide short courses from time to time. 2. Postgraduate advanced and special courses. Consecutive series of advanced courses, each series dealing with one clinical subject from the specialist or advanced point of view, should be arranged by educational subcommittees to be elected annually by separate meetings of London teachers, including the councils of the corresponding sections of the Royal Society of Medicine. 3. Postgraduate students preparing for special examinations. Courses for special examinations should be arranged by individual schools, as has been done in the past.

Increase of Women Physicians

The great increase in the number of women physicians in this country since the war began has been pointed out in previous letters to THE JOURNAL. It is now foreseen that by 1925 there will be a very large number, for nearly 3,000 woman students are taking up medicine today. The Women's School of Medicine is quite full. There are many reasons for this. First, there was a scarcity of men physicians brought about by the war. Then, a large number of openings arose, owing to the progressive public attitude toward social welfare and child life. These appointments will increase from year to year as it is realized what great factors the clinic and the medical inspector are in the educational and industrial worlds. The girls who are training to become physicians are mostly from the middle professional class, some are the daughters of rich merchants, who are determined to be independent, and others are from the families of the once leisured class, now described as the "new poor" (people made poor by the rise in the cost of living with no counterbalance).

Criticism of the Insurance Act

Dr. Addison, minister of health, received a deputation from the British Federation of Medical and Allied Societies with regard to the national insurance act. Dr. Arthur Latham said that the deputation came to emphasize the fact that national health insurance did not permit the insured persons to receive all that the science of medicine had to give, and under the regulations the physician was not able to do the effective work he was willing and anxious to do. They had the lessons of five years' experience during the war of the most gigantic experiment in health services the world ever saw. The insured public asked for bread and were given a stone. They asked for health and were given regulations which seemed to be chiefly designed to catch the erring physician in some fault. The tendency of the regulations was to impair the efficiency of the health services. At the end of the war the medical arrangements were far more effective than at the beginning, and under the compelling force of great events, modern methods were able to push their way through regulations. There must be regulations; but if they were not to hamper efficiency, they must be elastic. None of the lessons of the war had been incorporated in the regulations of the insurance act. The deputation suggested a public inquiry into the working of the act.

Dr. Addison said he was grateful for the efforts of the federation to focus trained medical opinion on the question how the medical services of the country could best serve the public. He invited its help in devising a scheme whereby a strongly individualistic profession, such as the medical, could be brought with good will to devote its services commonly to the public necessity. The type of service he was aiming at had been remitted to the consultative council, and as soon as he received the report it would be made public. Should a wider inquiry be found necessary it could be undertaken.

The St. Andrews Institute for Clinical Research

On retiring from practice in London, Sir James Mackenzie took up his residence in the small Scotch town of St. Andrews, where he has founded an institute for clinical research of a new type to carry out methods of investigation which he has long advocated. He considers that the methods of physiology and bacteriology which have helped some sections of medicine are not applicable by themselves to the wider fields of clinical medicine. What is necessary is a much more profound and systematic study of symptoms than has been accomplished in the past. Disease is made manifest only by symptoms. Therefore, the first step is to understand the nature and significance of symptoms. The structural stage of disease when it has caused structural damage has been fairly well studied, but not so the early stages before the occurrence of physical signs, and the causes which predispose to disease. St. Andrews has a population of only 10,000, but this is considered an advantage, as the inhabitants are less migratory than in larger towns and it is therefore easier to keep in touch with them. The

object is to study not the rarer forms of disease but the most common. Arrangements have been made with the physicians on the insurance panel by which their patients will attend the institute at regular hours. Each physician will have at his disposal a separate room and all the facilities of the institute. A chemist has been appointed on the staff, and it is intended to appoint a bacteriologist. The professors of anatomy and physiology of St. Andrews University will give help and also—a peculiar innovation—the assistant professor of logic.

Ventilation of Places of Amusement

The Public Health Committee of the London County Council is recommending the enforcement of regulations for the more effectual ventilation of places of amusement, and the exclusion of children, as precautionary measures against the spread of infectious diseases. The theaters and music halls committee of the council has already expressed the opinion that the only efficient means of securing satisfactory atmospheric conditions in a place of entertainment and thereby preventing as far as possible the spread of infection is the installation of an adequate system of mechanical ventilation combined with a system of heating under which fresh air is warmed before it enters the building. Experience has shown that unless incoming air is warmed, the mechanical ventilation system is not fully utilized, owing to the cold draft caused. Such a combined system is required in all new places of entertainment and, as opportunity offers, in existing places. A similar policy has been pursued with regard to the provision of means of natural lighting, so that daylight may be freely admitted into halls when not in use for cinematograph displays.

PARIS

Jan. 22, 1920.

A Confederation of French Scientific Societies

In my letter of January 15 (The Journal, Feb. 21, 1920, p. 538) I mentioned the circumstances that had led certain societies to form federations. The chemical societies were the first to take such action. Soon afterward the societies of natural science followed their example, and now a federation of the societies of physical science is about to be organized. On the initiative of M. Moureu, professor in the Ecole supérieure de pharmacie de Paris, and member of the Academy of Medicine and the Academy of Science, a meeting of the representatives of these various federations has been called to discuss the feasibility of forming a general confederation of federated scientific societies. About forty scientific societies were represented at this meeting, and it was unanimously decided to form such an organization. The purpose of this confederation will be to establish intimate relations between the groups of the different branches of pure and applied science; to coordinate their efforts from a scientific, technical and economic standpoint, and to further the development of all movements destined to contribute to the progress of pure and applied science, with a view to promoting the economic welfare of the country, and to increasing the general prosperity.

Difficulties That Scientific Publications Are Facing

Everything pertaining to printing and publishing is associated with difficulties nowadays. First, there is the shortage of paper to contend with; then there is the scarcity of labor, the lack of suitable buildings, transportation difficulties, the deficiency of coal, etc. This state of affairs not only retards the publication of scientific journals, but threatens their very existence. Some publications whose fine general appearance justifies a considerable increase in price or whose subscription list is growing rapidly can endure all these inconveniences, but with scientific publications it is different, for their patronage is necessarily limited. This condition of things is beginning to attract considerable attention in scientific circles, and, quite recently, M. Henneguy, professor in the Collège de France, took the initiative and called a meeting of the managing directors and secretaries of the scientific publications, and representatives of the federations of societies of learning. Ways and means of remedying the unfavorable conditions were discussed. A proposal to establish a cooperative society to handle the printing and publishing of scientific journals was considered, reference being made to the university press idea as carried out in England and America (Oxford University Press, and many others), but it was thought to be impossible or impracticable to adopt the university press plan in toto, although it was admitted that certain commercial features on which it is based may well be imitated. Any cooperative plan would have to be based, above all, on a complete inventory of French scientific publications, and would necessitate as wide a curtailment as possible. This implies, of course, the necessity of raising considerable funds; state aid would have to be secured; private contributions would need to be solicited, and an issue of stock would have to be made. In short, as a cooperative society could not be established over night, it was thought best to face the immediate needs of the scientific publications.

After this exchange of opinions, in which many men well known in the scientific world took part, M. Henneguy moved that a committee be appointed to study into the matter. His motion was unanimously adopted. Accordingly, the Comité d'étude de la presse scientifique was chosen to investigate the question and to report on these three matters pertaining thereto: 1. What plan can be adopted to print and publish works needed for scientific documentation, journals of pure and applied science, and works on pure science, so that they can be sold at a reasonable price, authors and writers be paid a just remuneration, and a maximal output be secured? 2. What journals already in existence or about to be founded could be so associated as to make possible eventually the plan of a cooperative printing and publishing house? 3. How may, eventually, French scientific publications be grouped and classified so as to avoid duplication of effort, and favor, on the other hand, the founding of new journals, if such should seem needed?

Medical Science and Aeronautics

The sixth Salon de l'Aéronautique, recently held in Paris, gave abundant evidence of the progress that medical science as applied to aerial navigation has made during the past six years, since the last Salon de l'Aéronautique was held in 1913. The physiologic section of military aviation was especially interesting. It covered six display booths. The first booth comprised everything that pertains to the general examination of the would-be aviator, including means of identification, height, weight, musculature, bones and joints. The second and third booths were devoted especially to the nervous system and the organs of sense: study of the functions involved in walking, the coordination of movements, the equilibration apparatus, and the examination of vision and audition. In the fourth booth, examinations of the circulation, blood pressure, and respiration were conducted. The fifth and sixth booths took up roentgenoscopy and the laboratory examination. The general impression that one gained at this exhibit was that medical science has made exceedingly important contributions to the progress of aeronautics, not only as regards the establishment of the standard which a candidate for the post of pilot must attain to in the medical examination, but also with respect to the limitation of the dangers of aviation in general. From the prophylactic point of view, the automatic oxygen inhaler may be mentioned particularly. The Garsaux inhaler is so constructed that oxygen to the extent of 35 liters an hour for each passenger is supplied automatically as soon as an altitude of 3,500 meters is reached. The amount of oxygen furnished increases gradually, until, at an altitude of 8,000 meters, 150 liters an hour are supplied.

Marriages

Henry Blodgett McIntyre, Lieut.-Col., M. C., U. S. Army, on duty at Fort McHenry, Md., to Miss Gladys E. Miller, at Mamaroneck, N. Y., January 31.

George Lyle Venable, New Sharon, Iowa, to Miss Georgia Jinks of North Manchester, Ind., in the chapel of St. Luke's Hospital, Chicago, February 3.

Matthias Higgins, Jr., Newport, Ky., to Mdlle. Germaine Perillion of St. Etienne, France, in New York City, February 7.

William H. Matchette to Miss Nellie Turner, both of Greenville, Ohio, at Covington, Ky., Dec. 22, 1919.

Arthur Lawrence Nielson, Kansas City, Mo., to Miss Katherine Krug of Washington, D. C., January 24.

Ralph Henry Dunning, Syracuse, N. Y., to Miss Georgia Malone of Lancaster, Ohio, January 27.

Thomas Conroy Eley, Plymouth, Ind., to Miss Gertrude Spiegel of Indianapolis, February 18.

Deaths

John Walton Ross ⊕ Pasadena, Calif.; Tulane University, New Orleans, 1868; aged 77; medical director (captain), U. S. Navy, retired; who entered the Navy in 1870, and was retired Jan. 11, 1905, on attaining the age of 62 years, after ten years and one month of sea service; and who since his retirement had resided in California; an expert in yellow fever; chief of the department of charities and hospitals in Havana during the American occupation of Cuba, and director of the hospitals of the Canal Zone; a member of the Association of Military Surgeons of the United States; died, February 9.

Joseph Ashton Blanchard, Shreveport, La.; College of Physicians and Surgeons, Baltimore, 1897; aged 45; formerly city physician of Shreveport; a member of the Louisiana State Medical Association; captain and assistant surgeon, First Regiment, Louisiana Volunteers, during the war with Spain; was found dead in his room in a hotel in Memphis, February 4, from a gunshot wound of the head, believed to have been self-inflicted, with suicidal intent.

Joseph Nelson Clark, Harrisburg, Pa.; Georgetown University, Washington, D. C., 1867; aged 80; for many years a druggist of Harrisburg; a veteran of the Civil War; president of the People's Savings Bank of Harrisburg; a school director for eleven years, and for one year secretary of the board; died, February 5, from bronchopneumonia.

James Jackson Johnson, Braggs, Okla.; University of Louisville, Ky., 1907; aged 35; sergeant first class, Medical Department, U. S. Army, for six years, and later attached to the American Red Cross Commission to Siberia; died, Dec. 13, 1919, from typhus fever, and was buried with military honors at Irkutsk, Dec. 16, 1919.

Harry John Tate, Pittsfield, Mass.; Georgetown University, Washington, D. C., 1914; aged 30; first lieutenant, M. C., U. S. Army, with service abroad; a member of the Massachusetts Medical Society; city physician of Pittsfield; died in the House of Mercy Hospital, Pittsfield, February 11, from pneumonia.

Hiram M. Day, Delaware, Ohio; Western Reserve University, Cleveland, 1881; aged 65; a member of the Ohio State Medical Association, and once president of the Delaware County Medical Society; formerly president of the Farmer's Bank, Pandora, Ohio; died, February 2, from heart disease.

George Henry Balleray ⊕ Paterson, N. J.; College of Physicians and Surgeons in the City of New York, 1869; aged 71; a fellow of the New York Academy of Medicine, and of the British Gynecological Society; for ten years surgeon to the Woman's Hospital, Newark; died, February 11.

John Stevenson Tinker ⊕ Philadelphia; University of Pennsylvania, Philadelphia, 1908; aged 45; a member of the eye, ear, nose and throat staff of the Polyclinic Hospital and Bethany Dispensary, Philadelphia; died, February 8, in the Polyclinic Hospital, from pneumonia.

William Leckie Bain, Chicago; College of Physicians and Surgeons in the City of New York, 1884; aged 60; for several years a resident of Denver; a specialist in the electrolytic treatment of copper ores; died, January 30, from locomotor ataxia.

Michael Charles Dunnigan, Erie, Pa.; University of the City of New York, 1868; aged 80; formerly town clerk and treasurer of Erie; president of the Erie Board of Health in 1899; died, February 5, from cerebral hemorrhage.

Otto A. Hartwig, St. Louis; Missouri Medical College, St. Louis, 1880; aged 76; a member of the Missouri State Medical Association; for more than twenty-five years a pharmacist; died, February 3, from bronchitis.

James E. Cole, Hazelwood, N. C., formerly of Middleton, Ga.; Southern Medical College, Atlanta, Ga., 1890; aged 54; a member of the Elbert County Board of Education; died, February 3, from cerebral hemorrhage.

Alexander Samuel Harshberger ⊕ Lewistown, Pa.; University of Pennsylvania, Philadelphia, 1870; aged 70; local surgeon for the Pennsylvania Railroad for thirty-two years; died, February 11, from pneumonia.

Joseph Patrick Deery, Fairfield, Conn.; Maryland Medical College, Baltimore, 1913; Kansas City (Mo.) College of Medicine and Surgery, 1917; aged 34; died at Bridgeport, Conn., February 2, from pneumonia.

⊕ Indicates "Fellow" of the American Medical Association.

Harvey Sturgeon Foringer, Wilkinsburg, Pa.; College of Physicians and Surgeons, Baltimore, 1896; aged 60; for the last fifteen years a representative of a pharmaceutical house; died, February 4, from pneumonia.

Howard L. McKinstry, Red Wing, Minn.; University of Pennsylvania, Philadelphia, 1870; aged 71; died at the home of his daughter in Granite Falls, Minn., February 7, from cerebral hemorrhage.

Edwin Howe, Los Angeles; Physio-Medical College, Cincinnati, 1851; aged 91; for more than sixty years a practitioner of St. Joseph, Mo.; died, Dec. 29, 1919, from cardio-renal disease.

William Thomas Vance, Bloomsburg, Pa.; University of Maryland, Baltimore, 1881; aged 68; a member of the Medical Society of the State of Pennsylvania; died, January 30, from heart disease.

John F. Taggart, New Washington, Ind.; Jefferson Medical College, 1860; aged 83; surgeon of the Fourth Indiana Volunteer Cavalry during the Civil War; died, Nov. 30, 1919, from epithelioma.

John Thomas Phillips, Newport, Wash.; Rush Medical College, 1897; aged 49; president of the Security State Bank of Newport; once mayor of Newport; died, February 11, from influenza.

Malcolm Munroe Campbell, Albany, Mo.; University of Michigan, Ann Arbor, 1871; Bellevue Hospital Medical College, 1875; aged 80; died in a hospital in St. Joseph, Mo., February 10.

William Frank Kistler, Minersville, Pa.; Hahnemann Medical College, Philadelphia, 1874; aged 68; died at his winter home in St. Petersburg, Fla., January 30, from cerebral hemorrhage.

Oscar Loehr, Milwaukee; University of Berlin, Germany, 1880; aged 65; died in Alexian Brothers Hospital, Chicago, February 9, from uremia following an operation for prostatic abscess.

Edward August Arnold, East Orange, N. J.; Cornell University, New York City, 1909; aged 32; house physician at the Orange Memorial Hospital; died, February 5, from pneumonia.

John Jasper Sewall, Newport, Me.; University of the City of New York, 1887; aged 62; a member of the Maine Medical Association; died, February 3, after a surgical operation.

George Philip Beutel, Louisville, Ky.; University of Louisville, Ky., 1880; aged 72; died in St. Anthony's Hospital, Louisville, February 7, from shock after a surgical operation.

Walter DeWolf Jones, Dierks, Ark.; Philadelphia University of Medicine and Surgery, 1867; aged 75; a veteran of the Civil War; city health officer of Dierks; died, February 4.

Daniel Henry Arendale, Mount Vernon, Ill., University of Nashville, Tenn., 1884; aged 62; died at his farm, near Mount Vernon, January 30, from acute dilatation of the heart.

Henry Rudolph Widmer ⊕ Newark, N. J.; College of Physicians and Surgeons in the City of New York, 1903; aged 38; died, February 1, from cerebral hemorrhage.

Joseph LeRoy Gross, Pittsburgh; Jefferson Medical College, 1919; a member of the house staff of Mercy Hospital, Pittsburgh; died, February 5, from pneumonia.

Clarence Homer Kemp, Elmwood, Ill.; Rush Medical College, 1896; aged 49; a member of the Illinois State Medical Society; died, January 30, from pneumonia.

Arthur G. Thome, Chicago; Chicago Homeopathic Medical College, 1883; aged 62; died in the Chicago Union Hospital, February 17, from heart disease.

William P. Van Sant, Brooklyn, Ind.; Columbus (Ohio) Medical College, 1880; aged 68; died in the Methodist Hospital, Indianapolis, Dec. 5, 1919.

George Washington Hart, Brooklyn; College of Physicians and Surgeons in the City of New York, 1901; aged 46; died, February 7, from pneumonia.

Caryl B. Storrs, Minneapolis; Michigan College of Medicine and Surgery, Detroit, 1892; aged 49; died, January 18, as the result of an accident.

George W. W. Walker, Roseville, Ohio; Zanesville (Ohio) Academy of Medicine, 1875; aged 73; died, February 6.

Correction.—Dr. James Jefferson Johnson, whose death was announced in THE JOURNAL of February 14, states that there must be an error in name as he is still alive and practicing at Sulphur Springs, Texas. The physician who died was Dr. James Jackson Johnson.

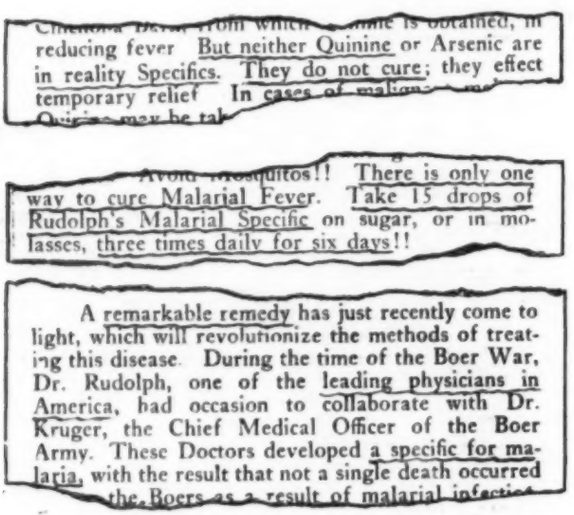
The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

ANTIPLASMA

J. J. Rudolph's Alleged Specific for Malaria

During the last few months THE JOURNAL has received a large number of inquiries from the South relative to a nostrum that is being sold in that part of the country under the name "Antiplasma" or "Rudolph's Malarial Specific." According to the advertising, the preparation was "developed by J. J. Rudolph, M.D." who, we are told is "one of the leading physicians in America." This, while an obvious enough joke to the medical profession, may be taken seriously by the general public and thus contribute duly to the sale of "Antiplasma." The story goes that Dr. Rudolph during the Boer War collaborated with "Dr. Kruger, the Chief Medical Officer of the Boer Army" and that, between them, they


reducing fever But neither Quinine or Arsenic are in reality Specifics. They do not cure; they effect temporary relief
There is only one way to cure Malarial Fever. Take 15 drops of Rudolph's Malarial Specific on sugar, or in molasses, three times daily for six days!!
A remarkable remedy has just recently come to light, which will revolutionize the methods of treating this disease. During the time of the Boer War, Dr. Rudolph, one of the leading physicians in America, had occasion to collaborate with Dr. Kruger, the Chief Medical Officer of the Boer Army. These Doctors developed a specific for malaria, with the result that not a single death occurred

Reproductions (reduced) from the circular which is wrapped around the bottle of "Antiplasma."

"developed a specific for malaria with the result that not a single death occurred among the Boers as a result of malarial infection."

In orthodox "patent medicine" style it is declared that quinin—universally recognized as one of the few specifics in medicine—is not in reality a specific at all:

"There is only one way to cure Malarial Fever. Take 15 drops of Rudolph's Malarial Specific on sugar or in molasses, three times daily for six days."

"In no instance has a case not yielded to treatment and a complete and lasting cure effected within seven days."

This marvel, it seems, after the close of the Boer War lay dormant for years and "has just recently come to light"; it "will revolutionize the methods of treating this disease." We are told that for eighteen years past "Dr. Rudolph has used this compound in his private practice in America and has proved its efficacy beyond question and to the complete satisfaction of a number of reputable scientists." Search of medical literature, however, fails to show that Dr. Rudolph has given the world, medical or otherwise, any information regarding his epoch making discovery. Apparently, this "leading physician" kept to himself the knowledge of his "specific" for one of the most widespread diseases known, until he decided that the time had come to commercialize it.

A number of original, sealed packages of Antiplasma were turned over by THE JOURNAL'S Propaganda department to the A. M. A. Chemical Laboratory. Here is the chemist's report on the product:

"'Antiplasma' ('Rudolph's Malarial Specific') is a pale yellow, viscid liquid having an odor resembling a mixture of oil of turpentine and oil of wintergreen. Its taste is aromatic and bitter, somewhat like the resinous exudates from spruce. On heating, the substance burned with a smoky flame, leaving only a trace of ash. The specific gravity was found to be 0.97924 at 25 C. On distillation with steam, Antiplasma gave a volatile fraction and a non-volatile portion, the latter amounting to 52.9 per cent. of the weight taken. The non-volatile residue was a pale yellow solid which softened to a thick, viscous fluid at 100 C. The odor of the warmed substance was pine-like. It responded to the usual tests for rosin. The distillate appeared to be a mixture of oil of turpentine and methyl salicylate (oil of wintergreen). Quinin and arsenic, two remedies frequently used in the treatment of malaria, were absent. It was impossible to determine by the analysis whether the product had been made by warming a mixture of rosin, oil of turpentine and methyl salicylate or by 'thinning' some natural turpentine-like product with methyl salicylate.

"A mixture of 53 parts of bleached rosin, 41 parts of oil of turpentine and 6 parts of methyl salicylate would probably have whatever anti-malarial properties Antiplasma possesses."

Correspondence

STATUS OF ARSPHENAMIN PATENTS

To the Editor:—In response to requests from a number of physicians concerning the status of the arsphenamin patents, I submit data on the subject in the hope that they will interest the readers of THE JOURNAL.

During the recent war, Congress passed a law, known as the "Trading with the Enemy Act," which, among other things, conferred on the President the authority to license American citizens to operate enemy-owned patents. This power was by executive order delegated to the Federal Trade Commission, which granted, after due consideration, licenses to certain applicants. Licensees under this law were to pay 5 per cent. of their gross receipts to the alien property custodian, who was to deposit the same in the United States Treasury. Within a year after the declaration of peace, the foreign owners of the patents were given the right to sue in a court of equity for the payment of a reasonable royalty (presumably the said 5 per cent.) and also to petition the court for a termination of the license granted.

These provisions of the Trading with the Enemy Act have been to a large extent nullified by certain clauses in the treaty of peace, bearing on seized property. An amendment to the Trading with the Enemy Act permitted the alien property custodian to regard patents as property and to seize and sell such property as was owned by enemy aliens. The alien property custodian thereupon seized the 4,500 German chemical patents in the United States, including those covering drugs, dyestuffs and the like. These were sold to the Chemical Foundation for $250,000.

The purposes of this corporation have been misunderstood in certain quarters. The Chemical Foundation is to be conducted *pro bono publico* and its by-laws exclude the possibility of private gain. Its object is to protect the struggling dye industries of this country and to stimulate and aid scientific research in industrial and medical chemistry; the profits accruing from the royalties paid to it on patents are, after redemption of the preferred stock, to be utilized in grants for these purposes. Its trustees are prominent men of known public spirit and of unimpeachable honor.

The title of the Chemical Foundation to the patents appears to be absolute and irrevocable. Congress specifically limited any claim on the part of the former foreign owners to the proceeds of the sale and not to a recovery of the patents. The peace treaty, in Article 297, validates and confirms the acts of the alien property custodian, and Germany

thus acquiesces in the loss of these patents. The treaty further provides that the German owners of seized patents cannot seek financial redress from the American licensees, but shall look to the German government, which shall indemnify her citizens to the extent of the claims due. The German owner of patents granted before the war is no longer entitled to manufacture in the United States, or to import his products into the United States.

The arsphenamin patents now being the property of the Chemical Foundation, the German manufacturer cannot export the drug to this country without infringing the patent ownership. The laboratories in the United States now manufacturing arsphenamin will enjoy this privilege for the duration of the patent, which on this particular drug extends to 1928. Royalties must, of course, be paid by them to the Chemical Foundation, which may, in its judgment, license additional laboratories to produce this compound and other similar compounds. As to new patents in the future, Germany will be protected as she was in the days before the war. The licensing of persons to furnish arsphenamin and neo-arsphenamin throughout the United States was in the beginning carried out by the Federal Trade Commission under regulations formulated by the United States Public Health Laboratories. It may be safely asserted that in no country in the world is the distribution of these products so thoroughly controlled and regulated as in the United States. Compounds must contain a definite percentage of arsenic within narrow limitations, and must pass rigorous toxicity tests in animals. In Germany the original product was tested by subcutaneous injections in mice. The laboratories referred to above have wisely substituted intravenous injections in rats.

Great credit is due to Dr. G. W. McCoy, director of the United States Public Health Laboratories, for the manner in which he has organized the scientific supervision over the arsenical products, and to Prof. Julius Stieglitz of the University of Chicago, who has acted as the government's expert on arsphenamin throughout the entire period of the war, and who has made many personal sacrifices in the interests of the country.

JAY FRANK SCHAMBERG, M.D., Philadelphia.

AMERICANIZATION OF THE MEDICAL PROFESSION

To the Editor:—Would not this be a propitious time for the various states to enact laws requiring full citizenship of all physicians, etc., who may hereafter apply for a license to practice? Educational institutions should be open to all, irrespective of nationality or citizenship, but medical societies, clubs, and similar organizations might aid considerably in the work of Americanization were they to require citizenship as an essential qualification for membership. Honorary memberships could be extended to nonresident foreigners of eminence.

WILLIAM H. HOLMES, M.D., Chicago.

"A MODIFIED TECHNIC IN OPERATION FOR OBLIQUE INGUINAL HERNIA"

To the Editor:—I have read, with no little interest, Dr. Angwin's article (THE JOURNAL, Feb. 14, 1920, p. 437) on the subject of a modified technic in the operation for oblique inguinal hernia. Having served at the Naval Hospital at Great Lakes during Dr. Angwin's duty there, I had a chance to observe some of his methods of both herniotomy and varicocele operations, both of which vary somewhat from the classical. One of the main advantages in his technic in herniotomy, which is not emphasized in the article, is the lessening of traumatism to the cord structures. This small factor not only relieves the patient of postoperative distress, but also lessens the dangers to the veins and vas in the cord.

On the other hand, the principle of anchoring the peritoneum to a structure outside the abdomen, however strong, does not appear desirable. Intra-abdominal structures resemble the caged lion, continually moving about seeking a weak place in the cage. To anchor the peritoneum, at or very near the point of a previous hernia, necessarily leaves a predisposing point for subsequent trouble. Closure of the clean peritoneum will, I think, give the best results when not securely anchored, but allowed to heal as it is normally found, free, movable and smooth.

B. V. MCCLANAHAN, M.D., Galesburg, Ill.

"COMMERCIAL DOMINATION OF BIOLOGIC THERAPEUTICS"

To the Editor:—I wish to express appreciation of your editorial on the "Effects of Quinin on the Tissues," in THE JOURNAL, February 14, and to congratulate you on the splendid article on "Commercial Domination of Biologic Therapeutics," in Current Comment in the same issue. The latter subject is a suitable one for an editorial, in which you should place the matter even stronger than you did in this article. In fact, I think this subject is one that justifies repeated editorials from time to time.

C. C. BASS, M.D., New Orleans.

RESPIRATORY SOUNDS HEARD ON THE HEAD

To the Editor:—Apropos of the letter of Dr. Myerson in THE JOURNAL, Feb. 14, 1920, regarding respiratory sounds heard on the head, I should like to call attention to the difference in degree of sound transmission between a healthy and a diseased mastoid. Both the respiratory sounds and sound such as that produced by tapping on the central incisors are transmitted better to a bell stethoscope on the diseased side. In mastoiditis this fact becomes of diagnostic importance.

ARTHUR C. JACOBSON, M.D., Brooklyn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PHYSICIANS AND THE PROHIBITION LAW

To the Editor:—Please advise me whether or not it will be necessary for me to execute a bond for $1,000 to the federal government in order to get a permit to purchase 6 quarts of whisky to be used in emergency cases that may occur in my regular practice during any one year, the whisky to be furnished with no charge whatsoever. I have been told that the bond is necessary, but I do not so understand from the article on "The Physician and the Prohibition Law" (THE JOURNAL, Jan. 31, 1920, p. 342).

G. P. ZIRKLE, M.D., Kingston, Tenn.

ANSWER.—Treasury Decision 2940, issued Nov. 6, 1919, provided that all persons holding permits to purchase whisky or alcohol must give bond to the minimum amount of $1,000. Internal Revenue Regulations 60, issued late in January, 1920, superseded previous regulations and modified this rule by providing, as stated in the article mentioned, that unless otherwise required by the commissioner, bonds need not be filed by physicians, dentists or veterinarians. This means that except in special cases in which the commissioner may see fit to require a bond, physicians do not need to file a bond to secure a permit.

VACCINATION WITHOUT SCAR

To the Editor:—Please describe the technic of vaccination without scar, referred to in THE JOURNAL, Jan. 24, 1920. What is the best variety of vaccine to use, how is it diluted, what is the size of the dose, is it given endermically or hypodermically, and how far should the needle be introduced? In children should the site of injection be anesthetized with a toothpick dipped in pure phenol?

HENRY F. HOYT, M.D., Long Beach, Calif.

ANSWER.—The subcutaneous method of vaccination was described by J. R. Goodall (*Am. J. M. Sc.* **158**:721 [Nov.] 1919), who employs the following technic: Vaccine put up in capillary tubes is used. These are put in denatured alcohol for a few minutes, then dried with aseptic absorbent cotton,

the ends broken off, and the vaccine blown into a beaker by means of a sterile rubber bulb fixed to the end of the tube. From one half to three quarters of a tube of vaccine is allowed for each person, and sufficient sterile water is added to make the individual injection 1 c.c. The arm is sterilized with iodin and the vaccine injected with a fine hypodermic needle and syringe diagonally into the subcutaneous tissues. In a few cases in which the injection was made intradermically, the typical reactions of ordinary vaccination developed without complications. In the others the local reaction was much like that after antityphoid inoculation and usually set in between the second and fourth days, but in a few cases was considerably delayed even for from twelve to fifteen days. Everything should be done with surgical cleanliness, and the needle should be changed for each injection. Children undergo hypodermic vaccination without any difficulty by this comparatively painless procedure. If only one or two persons are to be vaccinated, the vaccine may be prepared as for ordinary hypodermic injection. It should be understood that the method is not yet generally accepted.

"PROCAIN"—BOOKS ON GONORRHEA—SYPHILIS—MALARIA

To the Editor:—1. What is the difference between novocain and procain?

2. Which is the least toxic?

3. What percentage of each should be used on all parts of the body with the exception of the gums?

4. What percentage is safe for extraction of teeth?

5. What is the maximum amount in grains or fractions that is safe for use in one operation?

6. Please refer me to a good book on (*a*) the treatment of syphilis of all types; (*b*) the treatment of gonorrhea and its sequelae; (*c*) malaria and its treatment.

I note what THE JOURNAL has to say about apothesine. I am glad that there is such a publication to speak out boldly against all pretenses.

W. B. PALMER, M.D., Furman, Ala.

ANSWER.—1. None. The term "procain" was adopted by the Federal Trade Commission and the Council on Pharmacy and Chemistry for use in place of novocain, which is the trade name for this product used by a single firm. "Procaine" is the term used by the American firms which have been licensed by the Federal Trade Commission to manufacture the drug.

2. See Answer 1.

3. According to New and Nonofficial Remedies, for infiltration anesthesia, solutions of 0.25 gm (4 grains) of procain in 100 or 50 c.c. (3.2 or 1.6 ounces) of physiologic sodium chlorid solution, with 0.3 or 0.6 c.c. (5 or 10 minims) of epinephrin solution (1:1,000); for instillations and injections, solutions of 0.1 gm. (1½ grains) procain in 10 or 5 c.c. (16 or 8 minims) physiologic sodium chlorid solution (1:1,000); in ophthalmology, 1 to 5 to 10 per cent. solution; in rhinolaryngology, 5 to 20 per cent. solutions are recommended, with the addition of 0.4 to 0.5 c.c. (6 to 8 minims) of epinephrin solution (1:1,000) to each cubic centimeter (16 minims).

4. See Answer 3.

5. Internally, owing to its feeble toxicity, it may be given in doses up to 8 grains. It might therefore be said that this is the maximum amount to be used in any operation.

6. (*a*) Thompson, Loyd: Syphilis, Philadelphia, Lea & Febiger, 1916, $4.25.
White and Martin's Genito-Urinary Surgery and Venereal Diseases, Ed. 10, Philadelphia, J. P. Lippincott Company, 1917.
Hayden, J. R.: Venereal Diseases, Philadelphia, Lea & Febiger, 1916.
Manual of Treatment of the Venereal Diseases, published by the American Medical Association, price 25 cents.

(*b*) Lumb, N. P. L.: The Systematic Treatment of Gonorrhea, Philadelphia, Lea & Febiger, 1918.
Luys, Georges: A Text-Book on Gonorrhea and Its Treatment, translated from the French by Arthur Foerster, New York: William Wood & Co., 1913, $6.

(*c*) Craig, C. F.: The Malarial Fevers, New York: William Wood & Co., 1909.
Deaderick, W. H.: A Practical Study of Malaria, Philadelphia: W. B. Saunders Company, 1909, $4.50.

TSCHERNING

To the Editor:—I notice in Queries and Minor Notes (THE JOURNAL, Sept. 20, 1919, p. 930) an inquiry for biographic data concerning Dr. H. E. Tscherning.

Dr. Tscherning is at present, and has been for the last few years, professor of ophthalmology in the University of Copenhagen, and chief of the department of eye diseases in Copenhagen.

S. N. VENDEL, M.D., Bröndersley, Denmark.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, Mar. 2. Sec., Dr. L. O. Sloan, Juneau.

ARIZONA: Phoenix, April 6-7. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

COLORADO: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven and Hartford, March 9-10. Sec., Reg. Bd., Dr. Robert L. Rowley, Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec., Eclectic Bd., Dr. James Edwin Hair, 730 State St., Bridgeport.

DISTRICT OF COLUMBIA: Washington, April 13-15. Sec., Dr. Edgar P. Copeland, the Rockingham, Washington.

FLORIDA: Jacksonville, March 16. Sec., Homeo. Bd., Dr. Geo. A. Davis, East Port.

IDAHO: Boise, April 6. Commissioner, Hon. Robert A. Jones, Boise.

ILLINOIS: Chicago, Mar. 1-3. Director, Mr. Francis W. Shepardson, Springfield.

IOWA: Iowa City, March 29-31. Sec., Dr. Guilford H. Sumner, Capitol Building, Des Moines.

MAINE: Portland, March 9-10 Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

MASSACHUSETTS: Boston, March 9-11. Sec., Dr. Walter P. Bowers, Room 144, State House, Boston.

MINNESOTA: Minneapolis, April 6-8. Sec., Dr. Thos. McDavitt, Loury Bldg., St. Paul.

MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW HAMPSHIRE: Concord, March 11-12. Sec., Dr. Charles Duncan, Concord.

OKLAHOMA: Oklahoma City, April 13-14. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, April 1-2. Sec., Dr. Byron U. Richards, State House, Providence.

WEST VIRGINIA: Charleston, April 13. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Washington July Examination

Dr. C. N. Suttner, secretary of the Washington Board of Medical Examiners, reports the written examination held at Seattle, July 1-4, 1919. The examination covered 13 subjects and included 143 questions. An average of 60 per cent. in each subject was required to pass. Of the 35 candidates who took the physician's and surgeon's examination, 34, including 2 osteopaths, passed, and 1 failed. The following colleges were represented:

College	Year Grad.	Number Licensed
PASSED		
College of Medical Evangelists	(1917)	1
George Washington University	(1912)	1
Bennett College of Eclectic Medicine and Surgery	(1897)	1
College of Phys. and Surgs., Chicago	(1903), (1910)	2
Loyola University	(1919)	1
Rush Medical College	(1878)	1
Baltimore Medical College	(1891)	1
Johns Hopkins University	(1913)	1
Harvard University	(1915)	1
Barnes Medical College	(1911)	1
Kansas City Medical College	(1901)	1
Kansas City University of Phys. and Surgs.	(1919, 2)	2
John A. Creighton Medical College	(1919)	1
Ohio-Miami Medical College	(1911)	1
University of Oregon	(1914), (1918), (1919)	3
Jefferson Medical College	(1918), (1919, 3)	4
University of Pennsylvania	(1892), (1916), (1918, 3)	5
Meharry Medical College	(1915)	1
McGill University	(1891), (1905)	2
Chiba Special Medical School	(1917)*	1
FAILED		
University of Louisville	(1912)	1

* Graduation not verified.

District of Columbia October Examination

Dr. Edgar P. Copeland, secretary of the District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, Oct. 14-16, 1919. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 23 candidates examined, 21 passed and 2 failed. Eight candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1919)	83.7, 84.5, 86.6, 87.1, 87.5, 87.6.
George Washington University	(1917)	75.8, 83.6, 84.7, (1919) 82.8, 86
Howard University	(1918)	76.3, (1919) 79.1
Johns Hopkins University	(1913)	86.5, (1918) 85.6
University of Maryland	(1917)	76.6
Harvard University	(1919)	88.2
Columbia University	(1914)	87.6

Cornell University	(1917)	91.1
Med. Coll. of the State of South Carolina	(1917)	77.2
Dalhousie University	(1916)	85

FAILED

Coll. of Med. and Surg. (Physio-Medical) Chicago	(1911)	58.6
Columbus Medical College	(1884)	66.2

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1904)	Maryland
Baltimore Medical College	(1906)	Maryland
Tufts College Medical School	(1905)	Maine
Ensworth Medical College	(1912)	Missouri
University of Nebraska	(1904)	Nebraska
Temple University	(1913)	Penna.
Medical College of Virginia	(1916)	Virginia
University of Aberdeen	(1901)	Virginia

Medicolegal

Sufficiency of Evidence of Typhoid Fever from Drinking Contaminated Water

(Stubbs v. City of Rochester (N. Y.), 124 N. E. R. 137)

The Court of Appeals of New York says that this action was brought by the plaintiff to recover damages alleged to have been sustained by him as the result of drinking contaminated water from the defendant's domestic service, in 1910. The trial resulted in a judgment for the defendant, which was affirmed by the appellate division of the supreme court, but that is here reversed, and a new trial granted, by this court, divided four to three. The important question in the case was, Did the plaintiff produce evidence from which inference might reasonably be drawn that the cause of illness was due to the use of contaminated water furnished by the defendant? Counsel for the defendant argued that, even assuming that the city might be held liable to the plaintiff for damages caused by its negligence in furnishing contaminated water for drinking purposes: (*a*) The evidence adduced by the plaintiff failed to disclose that he contracted typhoid fever by drinking contaminated water; (*b*) it was incumbent on him to establish that his illness was not due to any other cause to which typhoid fever might be attributed for which the defendant was not liable. Counsel asserted that there was a failure of proof on the part of the plaintiff, in that he did not establish that he contracted disease by drinking contaminated water, and in support of his argument cited a rule of law that when there are several possible causes of injury for one or more of which a defendant is not responsible, the plaintiff cannot recover without proving that the injury was sustained wholly or in part by a cause for which the defendant was responsible. If the argument should prevail, and the rule of law stated is not subject to any limitation, this case would illustrate the impossibility of a recovery in any case based on like facts.

One cause of typhoid fever was stated to be "personal contact with typhoid carriers or other persons suffering with the disease, whereby bacilli are received and accidentally transferred by the hands or some other portion of the person or clothes to the mouth." Concededly, a person is affected with typhoid some weeks before the disease develops. The plaintiff here resided three miles from his place of employment, and traveled to and from his work on the street car. To prove the time when he was attacked with typhoid, then find every individual who traveled on the same car with him, and establish by each one of them that he or she was free from the disease even to his or her clothing would be impossible. Again, the evidence disclosed that typhoid fever is caused by sources unknown to medical science. If the word of the rule stated were to prevail, the plaintiff would be required to eleminate sources which have not yet been determined or ascertained. This court does not believe the rule stated to be as inflexible as claimed for it. If two or more possible causes exist, for only one of which a defendant may be liable, and a party injured establishes facts from which it can be said with reasonable certainty that the direct cause of the injury was the one for which the defendant was liable, the party has complied with the spirit of the rule.

The plaintiff was employed in the immediate locality where the water was contaminated. He drank the water daily. The consumption of contaminated water is a very frequent cause of typhoid fever. In the locality there were a large number of cases of typhoid fever, and near to sixty persons who drank the water and had suffered from typhoid fever in that neighborhood appeared as witnesses on behalf of the plaintiff. The plaintiff gave evidence of his habits, his home surroundings, and his method of living, and the medical testimony indicated that his illness was caused by drinking contaminated water. Without reiteration of the facts disclosed on the trial, the court does not believe that the case on the part of the plaintiff was so lacking in proof as matter of law that his complaint should be dismissed. On the contrary, the most favorable inferences deducible from the evidence for the plaintiff were such as would justify a submission of the facts to a jury as to the reasonable inferences to be drawn therefrom, and a verdict rendered thereon for either party would rest, not in conjecture, but on reasonable possibilities

Unconstitutional Exemption Law Relative to Physicians' Bill

(O'Leary v. Croghan (S. D.), 173 N. W. R. 844)

The Supreme Court of South Dakota, without explaining the special nature of this case, says that the only question presented for determination on this appeal was the constitutionality of Chapter 150, Laws of 1911, which reads:

> Nothing in this chapter shall be so construed as to exempt any personal property from mesne or final process for laborers' or mechanics' wages or physicians' bills, or for the necessaries of life, including only food, clothing and fuel, provided for the debtor or his family, except property absolutely exempt . . . Provided, that in case of physicians' bills or for necessaries of life, there shall also be exempt household and kitchen furniture, including stoves, of the debtor, to an amount in value not exceeding $400, and also two cows: provided, however, that the collection of physicians' bills shall not be enforced by legal process in less than six months from the accruing thereof except when the debtor is about to remove from the state.

Stated somewhat differently, under the provisions of this chapter, the amount of a debtor's exemptions depends on the nature of his debts. As against certain classes of claims he may not be allowed any exemptions at all, except such as are denominated as absolute exemptions, while as against other claims he may be allowed additional exemptions to the extent of $750 worth of personal property, as provided by Section 2659, or the alternative exemptions enumerated in Section 2660, of the code. A corresponding discrimination is made as between different classes of creditors. A laborer or mechanic may satisfy his claim for wages out of any property of the debtor, except that made absolutely exempt, and may have immediate execution. A physician and one who has supplied the debtor with the necessaries of life must leave the debtor $400 worth of household and kitchen furniture, including stoves, and also two cows, in addition to his absolute exemptions; and the creditor who furnished the necessaries of life may have immediate execution; but a physician cannot have execution until six months after accruing of his claim.

None of these discriminations are authorized by Section 4 of Article 21 of the state constitution, which provides that:

> The right of the debtor to enjoy the comforts and necessaries of life shall be recognized by wholesome laws exempting from forced sale a homestead, . . . and a reasonable amount of personal property, the kind and value of which shall be fixed by general laws.

On the contrary, such discriminations are expressly prohibited by the provisions of Section 18, Article 6, that "no law shall be passed granting to any citizen, class of citizens or corporation, privileges or immunities which upon the same terms shall not equally belong to all citizens or corporations. The discriminations that have been attempted by the legislature may be wise and in the interest of the public at large, but until the constitution has been changed the legislature is without authority to make them. The court is satisfied that, in enacting Chapter 150, Laws of 1911, the legislature exceeded its constitutional power, and that said law is void.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, New Orleans, April 26-30.

Alabama State Medical Association, Anniston, April 20-22.
American Association of Anatomists, Washington, D. C., April 1-3.
American Assn. of Pathologists and Bacteriologists, New York, April 2-3.
American Dermatological Association, Asheville, April 22-24.
American Proctologic Society, Memphis, Tenn., April 22-23.
American Urological Association, New York, March 23-25.
Assn. of Military Surgeons of the U. S., New Orleans, April 24.
Louisiana State Medical Society, New Orleans, April 24-26.
Missouri State Medical Association, Jefferson City, April 6-8.
National Tuberculosis Association, St. Louis, Mo., April 22-24.
New York State Medical Society, New York, March 23-25.
North Carolina State Medical Society, Charlotte, April 20.
South Carolina Medical Association, Greenville, April 20-21.
Tennessee State Medical Association, Chattanooga, April 6-8.
Texas State Medical Association, Houston, April 22-24.

THE CHICAGO SOCIETY OF INTERNAL MEDICINE

Thirty-First Regular Meeting, Held Feb. 23, 1920

The President, DR. JOSEPH A. CAPPS, in the Chair

The Bacteriology of Epidemic Influenza

DRS. JAMES C. SMALL and FRED STANGL: *Bacillus influenzae* was found in 100 per cent. of our cases studied in our first series; pneumococcus Type I, none; Type II, one; Type II atypical, five; Type III, one; Type IV, nine; total positive for pneumococcus, sixteen, or 72.7 per cent. Hemolytic streptococci were found in two instances, or 9.1 per cent.

A second group comprises forty-five cases of acute influenza which were studied by the throat and sputum cultures only. These cultures were made on brown blood agar, and no attempt was made to identify organisms other than *B. influenzae*. This organism was obtained in forty-three of these cases, or 95.5 per cent. Six of this number had throat cultures only. The two cases negative for *B. influenzae* were in this group of six.

Among thirty controls, *B. influenzae* was demonstrated twenty-one times, or 70 per cent. The relative high incidence of *B. influenzae* in this group is comparable to the findings during the pandemic of 1918, and may be regarded as illustrating the wide dissemination of these organisms during epidemic periods.

In a second series, twenty-six patients in the tuberculosis hospital were studied. These patients were hospitalized before the epidemic. *B. influenzae* was found in nine instances, or 34.6 per cent. The findings in this group may be regarded as comparable to the incidence of *B. influenzae* during interepidemic times.

A group of thirty-two cases studied presents the bacteriology of the pneumonia of influenza, as it occurred among cases chosen at intervals throughout the course of the epidemic. The results of this study have been: Pneumococcus Type I, two; Type II, one; Type II atypical, six; Type III, five; Type IV, thirteen; total, twenty-seven, or 84.4 per cent. Hemolytic streptococci with pneumococci, one instance; with no pneumococci, five; total six, or 18.7 per cent. *B. influenzae*, twenty-four instances, or 75 per cent.

Those types of pneumococci occurring in the mouths of normal persons were found in practically 90 per cent. of the pneumococcus pneumonia of this group. The parasitic types I and II occurred infrequently: Type I only twice, and Type II once. These findings are in accord with those reported for the pneumonia of 1918. The hemolytic streptococcus occurred in approximately a fifth of the cases. It should be emphasized that in cases studied early in the epidemic this organism was not found. All instances in this group in which hemolytic streptococci were found appeared among the cases studied within the latter half of the period.

Ward surveys for hemolytic streptococci were made on three occasions at about ten-day intervals in several of the wards. These surveys were instituted to determine the hemolytic streptococcus situation in the wards rather than to follow the bacteriology of individual patients. The sheet cubicle system and a definite plan for preventing contact infections within these wards was practiced.

One of the wards had a high incidence of hemolytic streptococci at the time of the first survey. Isolation of patients carrying hemolytic streptococci did not prevent its further dissemination within this ward, and on the third survey twelve of twenty-two patients, or 54.4 per cent., had hemolytic streptococci in their throats. Four empyemas (all due to hemolytic streptococci) developed in this ward. Some cases of otitis media and one case of frontal sinusitis also developed in this ward. The bacteriology of these was not determined.

The other ward had an incidence of hemolytic streptococcus carriers of 16.7 per cent. on the first survey. Ten days later, on the second survey, it had only 3.3 per cent. On a third survey, only four patients remained in this ward, and two of these were positive. Two empyemas appeared in this ward, neither due to the hemolytic streptococcus. Several cases of otitis developed here also, of undetermined bacteriology.

These studies are too incomplete to enable one to draw conclusions, but it is a striking circumstance that, in the ward in which hemolytic streptococci were most prevalent, only hemolytic streptococcus empyemas developed, while in the other ward, no hemolytic streptococcus empyemas developed.

Observations on Green-Producing Cocci of Influenza

DR. RUTH TUNNICLIFF: During the recent influenza epidemic the majority of observers have isolated green-producing diplococci from the sputum and from material obtained at necropsy. The organisms were generally classed as Type IV pneumococci on account of their being soluble in bile and not agglutinated by pneumococcus serums. Pneumococci of Types II, III and more rarely I were isolated also. *Streptococcus viridans* and nonhemolytic streptococci were isolated by Keegan, Nuzum, Blanton and Irons, and others; but the colonies were not described, so that it is not possible to identify them with the other strains of streptococci. Other workers, notably Mathers, MacDonald, Rosenow, Howel, Anderson and Jordan, isolated a peculiar green-producing streptococcus from the nasopharynx, sputum, blood and necropsy material. This streptococcus was isolated by the late Capt. George Mathers at Camp Meade at the very onset of the epidemic at the camp and during the first and second days of the disease. He isolated this streptococcus from the sputum in 87 per cent. of the 110 cases of influenza and the complicating bronchopneumonias. The Pfeiffer bacillus was isolated also in 58 per cent. of these cultures. The coccus was cultivated from necropsy material in the six cases examined, the Pfeiffer bacillus from five.

I made immunity experiments with the Mathers coccus to determine its relation to influenza and the complicating pneumonia. The serum was examined for opsonins, as this antibody is usually easily demonstrated in streptococcus infections. The serum of patients with acute influenza was examined daily for its opsonic power. On the first day of the disease the opsonic content was low. On the second or third day it rose well above normal, remaining high a day or two.

Severe cases of bronchopneumonia following influenza were also examined. The serum showed little or no opsonins for the Mathers coccus. The negative phase in these influenzal pneumonias for this green-producing streptococcus is much more pronounced than is generally observed in other acute infectious diseases. The serum of the patients that recovered showed, as the symptoms subsided, a high opsonic content.

These changes in opsonins in influenza and influenzal pneumonia were specific for the Mathers coccus, no fluctuations being observed with the Pfeiffer bacillus, *B. influenzae*, *Micrococcus catarrhalis* or *Streptococcus hemolyticus*. Agglutination experiments with this streptococcus were negative.

It does not seem possible to determine definitely the etiologic relation of the Mathers coccus to influenza and its complications. At Camp Meade, Md., it was the prevailing organism during the onset and height of the epidemic. It was the micro-organism which appeared with the onset of influenza, Pfeiffer's bacillus having been present in the respiratory diseases for several weeks previous. In Chicago, Dr. Jordan found this coccus present in a few more cases than the Pfeiffer bacillus. When present, the coccus was always found in the early stages of the attack and was more closely associated with the pneumonia cases than the Pfeiffer bacillus. However, Dr. Jordan found the Mathers coccus present in colds and tonsillitis infections in about the same proportion of cases as influenza, while the Pfeiffer bacillus was here found less frequently.

My experiments, and later those of Rosenow, Howell and Anderson, show that the serum of convalescent influenza and influenzal pneumonia patients shows definite specific opsonins, agglutinins and complement fixation bodies for the Mathers coccus, which indicates that it played at least some part in the reaction in the epidemic and was of wider distribution than has been commonly recognized.

Evidence for and Against the Use of Vaccines in the Treatment of Influenza With and Without Pneumonia

DR. ERNEST E. IRONS: Before a remedy, whether prophylactic or curative, is recommended for general use, its powers and limitations should be well determined: (1) It should be of itself harmless, and should be of proved value; (2) if not altogether harmless, its value should be such that the advantages far outweigh the risk involved in its use; (3) if harmless of itself, it may still be dangerous in that it gives a false sense of security, and thereby prevents the institution of other more effective measures of prevention or cure. A common example of the latter type is the fumigating of a house while the resident, a carrier of the disease, goes at large. In estimating the value of vaccines in the prevention and cure of respiratory disease, several factors are commonly neglected:

1. Controls: No one today would accept a report on a Wassermann test unless he were assured that in making it, all necessary controls were used. In estimating the value of vaccines in groups of patients inoculated with them, it is not sufficient to base conclusions on impressions. Statistics, to be available for safe conclusions, should be based on large series of cases with like numbers of controls under identical conditions. This has not usually been the case in reports available in the literature; and when these are carefully examined the fallacy in the argument is usually recognizable.

2. Results of Animal Experiments: Animal experimentation, while fundamental and a necessary preliminary in biologic investigation, does not afford the final proof of value of a remedy for man. Because an immune serum for example contains demonstrable antibodies and will protect a mouse from fatal infection in a dose of 5 c.c., it does not follow that this serum will be effective in man in the same or even fivefold dose. In the same way, because the injection of a relatively large quantity of bacteria into animals produces demonstrable antibodies, it does not follow that the injection into man of an allowable amount of the same bacteria will afford protection against the corresponding organisms; nor is the amount of demonstrable response the same for all organisms. Even in the often quoted example of typhoid vaccination, the immunity is only relative, and though usually sufficient, fails when large numbers of bacilli are ingested.

During the recent periods of influenza epidemics, it has been proposed to prevent influenza by the inoculation of vaccines containing streptococci, pneumococci and the Pfeiffer bacillus, and this method has been widely practiced. The amount of vaccines used in this way is enormous—usually under circumstances which preclude the drawing of any scientific conclusions from results obtained. In the first place, the evidence that the Pfeiffer bacillus is the cause of influenza is extremely weak. It is true, that in recent weeks it has been found quite constantly in respiratory infections in Chicago. This prevalence was noted last year in some localities in the East, and in still other Eastern communities the same workers using the same methods were unable to find this bacillus. The Pfeiffer bacillus has also been found for years in diseases which have nothing to do with influenza, and at times when clinical influenza was not present. It is evident that the Pfeiffer bacilli in the vaccine cannot, therefore, be expected to contribute anything specific to the supposed protection from influenza.

The question then may be asked whether on clinical grounds any protection is afforded. Among the few adequately controlled reports available is that of McCoy, who inoculated a portion of the inmates of an institution and subsequently found an incidence of influenza among them equal to that in a like number of uninoculated controls.

If vaccines as used failed to protect against influenza, did they protect against the later pneumonia? The organisms of the secondary pneumonias varied greatly in different parts of the country, and in the same community at different periods of the epidemic, and so a vaccine prepared for use in one community might not have any specific relation to the prevalent type in another. To argue the importance of some unknown nonspecific elements in vaccines and other proteins in the treatment of disease is to cast aside one of the most important guides in the study of immunity. So far as I have been able to find, there is no conclusive evidence that previous vaccination had any effect on the incidence of pneumonia following influenza.

Of the other factors that had an enormous effect on the incidence of pneumonia, early hospitalization was the most important in the army and in civil practice. Patients already in hospital, such as those in surgical wards, frequently contracted influenza, but rarely pneumonia. Nurses who remained on duty after the onset of influenza developed pneumonia in twice as many cases as did nurses who went to bed at the first symptoms.

As has been the practice in recent years, a variety of substances, such as peptones, vaccines, liquor formaldehydi and mercurial salts, were injected intravenously in patients suffering from pneumonia, usually without any attempt at comparison with control cases. Some of the discussions of events following the injections would be amusing if it were not for the serious import to the patients. When in an occasional case the chill and thready pulse resulting from the administration of the vaccine is followed by a permanent defervescence, the event is described with as much detail as if sudden defervescence were not of almost daily occurrence in other groups of pneumonias not under such treatment. The effect of these administrations in hastening the fatal issue is not usually discussed.

In view of the very doubtful efficacy of vaccines in prophylaxis of influenza and its subsequent pneumonia, it is believed that further popularization of this method of control of influenza is undesirable. The use of vaccines and other proteins intravenously is dangerous, as well as being of extremely doubtful value.

DISCUSSION

DR. E. O. JORDAN: My own work in regard to influenza is incomplete, and my opinions are somewhat unformed at the present time. As regards the Pfeiffer bacillus, we made some observations both in the 1918 epidemic and in the epidemic just passing. I got the impression in 1918 that there was undoubtedly a good deal of variation in the frequency of the finding of the Pfeiffer bacillus according to the group that was examined.

We had several groups under observation in our laboratory work and we found a good deal of difference both in the frequency of occurrence of the Pfeiffer bacillus in individual cases and as regards actual numbers of Pfeiffer bacilli in different cases. That observation has been confirmed by our findings in the present epidemic. The frequency of occurrence of the Pfeiffer bacillus in cases of acute respiratory infection is by no means very convincing as to the rôle this organism plays in the primary infection. I confess to

being very much impressed by the work done by Park's laboratory on the lack of unity in the different strains. In one case, for instance, he describes his findings with six strains isolated from six members of one family, all coming down with typical influenza at about the same time, and these six strains from six different members of the family were all different immunologically. The serum of one strain would not agglutinate any of the others. This observation has been confirmed independently by Fleming in England, and those who have worked with the agglutinated serums have found considerable diversity in the reactions obtained.

There are different kinds of Pfeiffer-like organisms in the throat, both in normal persons and in different kinds of respiratory infection, and it may be that we shall have to sort out the different kind of bacteria. I do not believe the criteria usually employed for the identification of the Pfeiffer bacillus are sufficient to permit us to place these organisms in one group. We have certainly different kinds of organisms that have gone under the name of Pfeiffer bacilli, and it will take some time to sort them out.

In the last twenty-five years quite a number of cases have been put on record of meningitis in which the Pfeiffer bacillus has been found in pure culture, and these cases have been regarded as due to this bacillus. If the Pfeiffer bacillus was the cause of meningitis in the 1918 epidemic, we might suppose there would be, in all events, some increase in the number of cases of meningitis due to the Pfeiffer bacillus; but there has not been anything of that sort. Again, attempts made to produce influenza in human beings with injections of pure cultures of Pfeiffer bacillus have been unsuccessful in the vast majority of cases.

A word about the very interesting organism Dr. Tunnicliff has described. In the 1918 epidemic we found the Mathers organism, which had an extraordinary degree of virulence. It killed mice and sometimes guinea-pigs more rapidly than any other bacteria I ever got out of the respiratory tract. We have been examining the flora of ordinary colds and have not found the Mathers cocci in these cases; so when the first case of influenza appeared last month we looked with great interest to see whether the Mathers coccus was present, and much to my surprise we did not find it. We have not found Mathers' cocci in anything like the number we did in 1918.

With reference to vaccination or vaccines, in connection with the commission, financed by the Metropolitan Life Insurance Company, on respiratory diseases, of which I am a member, some observations and experiments are being carried on at the present time with a mixed vaccine, and it is hoped that before long we shall be able to give you the results of the work of this commission.

DR. DAVID J. DAVIS: The work that has been going on in the last year or two emphasizes the fact that the hemophilic organisms and the so-called influenzal bacillus are very widely distributed. In normal individuals the percentage varies anywhere from 10 to 40 or 50 per cent., which means that one person out of every three, four or five normally harbors these bacteria, and this percentage persists in epidemic times as well as in interepidemic times, as shown by the work of Lord and a number of other investigators. This organism is more widely distributed and more frequently the cause in all sorts of respiratory diseases, both acute and chronic, than any other. We have known for a long time that the bacillus occurred in practically 100 per cent. of whooping cough cases, and these organisms are not more dangerous, although they are distinctly different. It occurs commonly in measles cases, in various kinds of pneumonias, in meningitis cases, meningococcic infections, and in bronchiectases, pulmonary tuberculosis, and so on; consequently, the mere fact of the occurrence of the organism in a high percentage of cases, taken by itself, is not a criterion of any great value in considering it as an organism of etiologic importance in connection with this disease or any other disease. Pfeiffer, for instance, nearly forty years ago found the organism known by his name in practically 100 per cent. of cases, yet in the last year or two in Germany they have had great difficulty in finding the organism in a small number of cases. Pfeiffer's early work was supported generally by German investigators, yet in the 1918 epidemic, generally speaking, these German investigators had not been able to find the organism and had generally taken a stand against it as the cause of influenza.

As to the presence of hemolytic streptococci in the throat, I should like to call attention to the point that an error may creep in in making cultures from throats. Hemolytic streptococci are virtually constant in all throats in which tonsils are present. They can be found deep in crypts of the tonsils, and unless this fact is considered, reports of throat cultures in which hemolytic streptococci are found may be misinterpreted. These organisms are developing in the crypts from time to time and are passing out into the throat. They are quite virulent for animals, and they are obtained from empyema cases or from the blood in fatal cases.

DR. A. M. MOODY: I had occasion to examine material from many cases of influenza in France during the epidemic of 1918. The first cases occurred the latter part of August, 1918. It was impossible to differentiate those cases clinically from the cases we saw later. We made a bacteriologic examination of the material from the lungs, trachea, bronchi and sputum, and in nearly every case we found hemolytic streptococci in pure culture. About the middle of September the bacteriologic findings seemed to change and we began to find more influenza bacilli and green-producing streptococci similar to the organism described by Dr. Tunnicliff. In the first part of October we began to get patients from the states. During the epidemic we found more and more influenza bacilli. In November we found a mixture of all sorts of organisms, particularly influenza bacilli, and streptococci in the fatal cases. In the fatal cases we found large numbers of streptococci in the alveoli, so that none of these organisms can be put down as the cause of the disease. I do not believe we are any nearer the solution of the cause of the disease today than we were quite a while ago.

DR. JOSEPH A. CAPPS: In visiting the different base hospitals in France it was interesting to see the difference of opinion among bacteriologists as to the different organisms they found. In a group of hospitals having the same type of cases clinically one bacteriologist would find influenza bacilli, another pneumococci, and another streptococci. There were many places in which influenza bacilli were not found, and it was thought by some of the chief surgeons that the bacteriologists did not know how to find them; yet many of these bacteriologists were experts, and the reason they did not find influenza bacilli more frequently was that they were not there.

Does one attack of influenza confer immunity? I have seen several cases recently which lead me to believe that it does not. One patient in particular had leukopenia, respiratory symptoms, great prostration, and other symptoms associated with influenza, and recovered. This patient went to Florida and again developed a fresh attack. Another patient, after having recovered from the primary attack of influenza, went to California, and several weeks after the first attack had a second one. I presume that one can say this was a recurrence or perhaps a relapse, such as we have in typhoid fever cases.

DR. THEODORE TIEKEN: I have a strong conviction that vaccines are absolutely useless. I find that practitioners are using them for both prophylactic and curative purposes. They are using two or three different varieties of vaccines in the same cases so as to have what they call a polyvalent vaccine. In a town in an adjoining state I found one practitioner who was using Sherman's, Parke, Davis & Company's and Mulford's vaccines in the same case. When this patient developed pneumonia he switched to No. 38 or to No. 36. By the time I got there the patient developed marked tympanites and diarrhea, so that the practitioner had a colon vaccine ready to use. This is merely an example of what is going on and as showing the indiscriminate use of vaccines.

DR. ELLIS KIRK KERR: In connection with immunity, we were struck by the epidemic, Sept. 20, 1918, which ran for about six weeks. During that time we had about 6,000

cases of influenza in our camp of 35,000 or 40,000 men. About two days before the armistice, a troop movement started from the rural districts in Minnesota. The men were collected in Minneapolis and sent to Chattanooga. The men who were attacked with influenza were dropped off the train at different places. They had the same type of influenza that was prevailing in the camps. While the original epidemic was on, the ward attendants, nurses and physicians were coming down with the disease in the same proportion as the men in the camps. When this batch of men came in from Minnesota there was practically no extension of the disease. This group was isolated in camp, and the very ill patients were sent to the hospital, but there was practically no spread in the hospital from this group of cases. It would seem as if the disease had gone through the camp and picked out all the susceptible men.

DR. BERNARD FANTUS: Last year I had quite a number of patients who, two or three months after the primary attack, developed another attack. In the meantime, they had been entirely well. I have had a few patients that have developed a third attack about two months after the second attack. I think all practitioners have noticed the fact that in this year's epidemic many individuals were taken sick who were sick with influenza last year. Again, some patients who had severe attacks last year have had mild attacks this year, and vice versa.

So far as the vaccine treatment is concerned, vaccines cannot be of great value because we do not know what particular organisms are concerned in the causation of the disease.

Miscellany

PROCESS OF CANNING RIPE OLIVES

Because of the number of cases of botulism lately reported after the eating of canned ripe olives, there is naturally some speculation as to the processes involved in preserving this fruit. From a recent summary (*Am. Food J.* **15**:26 [Feb.] 1920) it is learned that while practices vary slightly certain procedures have been generally adopted by olive packers. The fruit is permitted to ripen on the trees, care being exercised to start picking before the olives are overripe. After the olives have been gathered by hand, they are transported to the packing plant, there first to be sorted by sizes, then put through repeated washings and conditionings for variable periods depending on the quality and condition of the fruit, the seasonal temperature and the technical details in vogue at the particular plant. In some plants the olives are kept in agitation during these procedures by means of the ordinary hand paddle, while compressed air jets serve the same purpose under more modern practices. The olives are first immersed in clear water in cement or wooden vats for two or three weeks, in order to prepare the skins for the subsequent steps in the process. They are then subjected for from eight to twelve hours to the action of a solution of caustic soda, 2½ ounces to the gallon of water. After exposure to the air until their coloring is uniform, the olives are again immersed in a solution of caustic soda, 1¼ ounce to the gallon of water, for a period of from eight to twelve hours. The second caustic treatment is to abstract the bitter properties of the fruit and is followed by washing in clear water until all traces of the lye have been removed. The olives are next immersed for one or two days in a brine solution testing 9 or 10 points on the salometer, after which they are deposited in bins in the canning room. Women operators then pack them in cans, rejecting at this time all imperfect or soft fruit. The cans are filled with brine testing about 12 points on the salometer at a temperature of 175-180 F. and are subjected to an exhaust process of 185 F. before sealing. The fruit is next cooked at 224 F. for from twelve to thirty minutes depending on the size of the containers, and is permitted to cool naturally. No effort is made by any of the canners to control accurately the temperature of the solutions in the various processes.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

Jan. 15, 1920, **26**, No. 3

*Origin, Growth and Fate of Osteoclasts and their Relation to Bone Resorption. L. A. Arey, Chicago.—p. 315.
Glandular Cells of Frogs Pancreas. S. Saguchi, Kanazawa, Japan.—p. 347.
Course of Wolffian Tubules in Mammalian Embryos. F. T. Lewis, Boston.—p. 423.
*Histologic Study of Spleen of Rabbit Under Heightened Phagocytic Activity. W. H. F. Addison, Philadelphia.—p. 437.

Nature of Osteoclasts.—The observations recorded by Arey were made on developing membrane bone of human and pig embryos. He concludes that the multinucleated giant cells known as "osteoclasts" probably include several morphologically similar but developmentally distinct elements. In the earliest stages of bone development, and to a certain extent in later stages, osteoclasts apparently arise from the confluence of the mesenchymal cells and conective tissue of the marrow. The chief source of osteoclasts, however, is from old osteoblasts and bone cells. Depleted, basophilic osteoblasts coalesce to form multinucleate masses. These syncytial elements become typical osteoclasts when their cytoplasm assumes an oxyphilic stainability. All intermediate tinctorial stages are demonstrable. True oxyphilic osteoclasts also exist in cytoplasmic continuity with basophilic osteoblasts. Increase in size and nuclear content results from the engulfing of osteoblasts met in the path of resorption and from bone cells which are ingested as the bone matrix is resorbed. Osteoclasts undergo retrograde changes and ultimately disappear through extreme degeneration. Only indirect and insufficient evidence points to the osteoclasts as the active, specific agents of bone resorption. That they are merely degenerating, fused osteoblasts, in Arey's opinion accords better with the known facts.

Spleen and Phagocytic Activity.—The cycle of changes associated with the phagocytic activity of the splenocytes of the rabbit was followed by Addison. He noted that when washed pigeon corpuscles are injected intravenously, they are rapidly hemolyzed. The hemolysis of the pigeon blood results in the liberation of great numbers of bone marrow cells, mature and immature. These are caught within the spleen, and quickly begin to be ingested by the splenocytes. The splenocytes grow with their increased contents, until at the sixteen hour stage they reach a very large size. As many as twenty cells are visible in a 4 microns section of a splenocyte, measuring 55 by 23.4 microns. As digestion proceeds, the splenocytes become smaller, and at the forty-eight hour stage they are much reduced in sizes some being not much larger than normal. Of the products of hemolysis of the pigeon blood after a single injection, little remains within sixteen hours. In the spleen, the splenocytes have an increased amount of iron containing substances, while the endothelial cells show, for the most part, very little. The comparatively small results seen within the phagocytic cells follow from the rapid reduction of the foreign blood corpuscles to particles of a very small size, and from the short time in which these fragments remain within the blood stream. In this special experimental procedure, where cells and cell fragments are the stimulus to phagocytosis, the splenocytes are the first to act, and they continue to act as the main phagocytic agents.

American Journal of Ophthalmology, Chicago

January, 1920, **3**, No. 1

Syphilitic Neuroretinitis. H. V. Wuerdemann, Seattle.—p. 1.
Test Objections for Illiterate. A. E. Ewing, St. Louis.—p. 5.
Venesection as Preventive for Explosive Hemorrhage. E. E. Maddox Bournemouth, England.—p. 23.
Experiments on Eye with Gas Mantles of Different Compositions. C. E. Ferree and G. Rand, Bryn Mawr College.—p. 24.
Rôle of Focal Infections in Sympathetic Ophthalmia. C. T. Cooke, Seattle.—p. 33.

Visual Defects of West Point Cadets. K. A. Phelps, Minneapolis. —p. 39.
Cyclodialysis. H. S. Gradle, Chicago.—p. 41.
Occlusion of Central Artery of Retina by Paracentesis of Cornea. L. W. Callan, New York City.—p. 48.
Simple and Practical Tonometer. E. J. Brown, Minneapolis.—p. 48.
New Perimetric Chart. A. Cowan, Philadelphia.—p. 49.
Visual Disturbances from Damage to the Centers. G. A. Veasey, Spokane.—p. 51.
Standardization of Ophthalmology and the Ethical Attitude of its Members. J. H. Burleson, San Antonio.—p. 52.

American Journal of Physiology, Baltimore

Jan. 1, 1920, **50**, No. 4

*Cardiovascular Reaction in Valsalva Experiment and in Lifting; Note on Parturition. P. M. Dawson and P. C. Hodges, Madison, Wis. —p. 481.
Some Aspects of Neuromuscular Respiratory Mechanism in Chelonians. H. C. Coombs, New York.—p. 511.
Protective Action of Some Organic Substances on Catalase in Acid Medium. M. Takeda, Tokyo.—p. 520.
*Gastrin Studies. II. Distribution and Extraction of Gastrin Bodies. A. B. Luckhardt, R. W. Keeton, F. C. Koch and V. La Mer, Chicago. —p. 527.
Physicochemical Studies on Bioluminescence. 1. Luciferine and Luciferine of Cypridina Hilgendorfii. S. Kanda, Fukuoka, Japan. —p. 544.
Id. II. Production of Light by Cypridina Hilgendorfii is not an Oxidation. S. Kanda, Fukuoka, Japan.—p. 561.
Preparation of Adenine Nucleotide by Hydrolysis of Yeast Nucleic Acid with Ammonia. A. Jones, Baltimore.—p. 574.
*Changes in Hydrogen Ion Concentration of Urine, as Result of Work and Heat. G. A. Talbert, Baltimore.—p. 579.

Effect of Strain on Heart Rate and Blood Pressure.—Dawson and Hodges report the results of their experiments to determine the immediate effect on the heart rate and blood pressures of exercises of strain. By "exercises of strain" is meant those muscular efforts which are performed with the glottis closed and which tend to compress the chest, thereby causing a rise in intrathoracic pressure. The two forms of strain studied were the Valsalva experiment and lifting. In the Valsalva experiment, the systolic pressure rose rapidly, primary rise. This was followed by an extensive fall. On cessation of the Valsalva effort there was a moderate rise of the systolic pressure. Lifting was characterized by changes in systolic blood pressure essentially similar to those which occurred in the Valsalva experiment. When the Valsalva or lift was modified, the usual picture was somewhat changed. The effect on the heart rate of greatly prolonging the Valsalva experiment was to decrease the intensity of the effort and with this the extent of the changes in the heart rate. When the Valsalva experiment experienced a series of interruptions, consisting of a single gasp each, the systolic blood pressure rose with each gasp from 10 to 20 mm. above normal. When a lifting experiment experienced similar interruptions, the changes of heart rate were less in extent than would otherwise occur even when the weight lifted was greater in amount. Observations were also made during parturition. During a labor pain in the anesthetized and tracheotomized rabbit, the mean blood pressure experienced changes (rise followed by fall) which are attributable to the changes in peripheral resistance due to uterine contraction and subsequent relaxation. The respiration also changed, decreasing in amplitude to a standstill in the inspiratory phase and then gradually returning to normal.

Cause of Gastric Secretion.—The existence of two classes of bodies causing gastric secretion is suggested by the authors. Whether these bodies are extractives from special tissues or hydrolytic cleavage products has not been determined. The investigation in the distribution of gastrin bodies has been temporarily abandoned for the more promising studies into the chemical nature of the product derived from the gastric mucosa.

Hydrogen Ion Concentration of Urine.—Talbert claims that intense exercise from fifteen to twenty minutes' duration increases the hydrogen ion concentration of the urine. A man subjected to the heat of a sweat cabinet for fifteen or twenty minutes will, in a large majority of cases, void a urine of higher hydrogen ion concentration. If muscular exercise follows immediately on subjection to heat, or vice versa, it is impossible to interpret the results.

Annals of Otology, Rhinology and Laryngology, St. Louis

September, 1919, **28**, No. 3

Otolaryngology in War. H. P. Mosher, Boston.—p. 673.
Delayed Secondary Hemorrhage Complicating Tonsillectomy. V. Dabney, Washington.—p. 697.
Otologic Work in U. S. A. General Hospital for Head Surgery. J. M. Ingersoll, Cleveland—p. 700.
Case of Brain Abscess Dependent on Empyema of Frontal Sinus. T. J. Harris, St. Louis.—p. 721.
Experiences in Surgery of Thyroid. J. C. Beck, Chicago.—p. 728.
Open Safety Pin in Trachea. R. McKinney, Memphis.—p. 777.
Case of Chronic Bilateral Abductor Paralysis of Vocal Cords (Cricoarytenoideus Posticus) Result of Goiter Operation. A. W. Corwin, Chicago.—p. 781.
Unusual Nasal Manifestation (Condyloma) of Syphilis. C. W. Richardson, Washington, D. C.—p. 786.
Retrobulbar Neuritis from Posterior Accessory Sinus Disease: Report of Seventeen Cases. L. E. White, Boston.—p. 793.
Tonsillectomy Under Local Anesthesia. G. B. Johnson, Franklin. —p. 819.
Gangrene of Right Temporosphenoidal Lobe of Otic Origin; Extensive Excision of Lobe; Recovery. J. F. McCaw, Watertown.—p. 823.
Case of Sarcoma of Pharynx. W. C. Bane, Denver.—p. 828.
Digest of American and English Otologic Literature for the Year 1918. O. M. Rott, Spokane.—p. 831.
Study of One Hundred Cases of Suspected Chronic Nasal Accessory Sinus Disease. Report of the X-Ray Findings. H. C. Ballenger, Chicago.—p. 894.

Boston Medical and Surgical Journal

Feb. 5, 1920, **182**, No. 6

Surgical Treatment of Peptic Ulcer. Report of Cases. P. E. Truesdale, Fall River, Mass.—p. 135.
*Treatment of Back Injuries; Spinal Fractures That Are Not Associated with Cord Symptoms. H. W. Marshall, Boston.—p. 140.
Some Incidents in the Life and Military Campaigns of Baron Larrey (1766-1843). W. P. Cones, Boston.—p. 146.
Technic of Citrated Blood Transfusion. H. C. Marble, Boston.—p. 153.

Treatment of Back Injuries.—From the study of thirty cases of vertebral fractures without cord symptoms and from a much larger series of simple back strains, Marshall concludes that spinal bone grafts are suited best for well-to-do patients who will be considerably benefited by slight or moderate improvements in their physical conditions. Results of surgical methods are not beneficial enough uniformly, and chances of fair or excellent recoveries are so good in healthy young adults without operation, that spinal bone grafts are not warranted in the majority of workmen's cases. Spinal grafts reenforce the posterior group of spinal ligaments and usually strengthen spines, at least to slight degrees. There are some dangers that unavoidable injuries to muscles and ligaments which result from surgical procedures may weaken backs more than inlaid grafts strengthen them. Mechanical appliances are required very commonly for considerable periods of time even after successful grafts; and results of this combination are presumably better often than either single method of treatment alone. Slight degrees of bony fracture in healthy young subjects are fairly well recovered from without operation in six months or less at times; and severer grades of bony impactions occasionally are followed by complete restorations of back functions without operations several years after dates of injuries. Treatments of back injuries, perhaps, should be directed primarily toward restoring strengths in muscular and ligamentous tissues because these are phases of treatment which are usually overlooked and neglected; but pathologic conditions in crushed vertebrae should be appropriately treated by immobilization and protection in ways universally approved in treatment of fractures. Treatments of musculoligamentous defects should include use of various therapeutic agents, according to physiologic requirements of the tissues in question. There should be use of mechanical braces to reenforce muscles and to offset temporarily the extra mechanical strains due to faulty postures or anatomic deformities. Physical therapeutic agents, massage manipulations, and exercises should be employed as well as internal medical measures. The latter rectify vascular defects and influence muscles and ligaments through the qualities of circulating blood. Continuous exclusive use of any one of these methods is unjustifiable for very long periods, and they should be alternated and

combined with due regard to established physiologic principles of alternate rest and activity known to be best for muscles and ligaments.

Feb. 12, 1920, **182**, No. 7

*Present Needs of Tuberculosis Campaign. J. B. Hawes, Boston. —p. 161.
*Diet Reduction with Retention of Protein to Relieve Glycosuria in Diabetes Mellitus. R. L. Fenlon, Iowa City.—p. 168.
Pathology of "Influenzal Pneumonia." F. P. McNamara, New Haven, Conn.—p. 171.
Possibilities of Carrel-Dakin Technic in Civil Life. A. G. Rice, Springfield.—p. 174.
*Treatment of Chronic Ulcers. F. E. Stowell, Worcester.—p. 176.
Case of Metacarpal Fracture. S. S. Dearborn, Nashua, N. H.—p. 178.

Present Needs of Tuberculosis Campaign.—Hawes does not believe that more laws in regard to tuberculosis are needed. Overzealousness on the part of local health boards, he says, has done harm to many patients and prejudiced their physicians strongly against reporting future cases. Education as to the need of reporting tuberculosis, on the one hand, and tact on the part of the local authorities, on the other, are what will solve this problem. Nor does he believe that antispitting laws accomplish much. Here again education as to habits of cleanliness and decent living and not more legislation is what is needed. The harm done by the careless spitter and the incorrigible consumptive, he says, is, after all, very slight. What has been accomplished in reducing the mortality from consumption during the past twenty-five years, and what shall be accomplished in the future is not because by means of sanatoriums a number of patients have been cured, nor because the spread of infection has been prevented by providing beds for advanced consumptives, but because the gospel of right living has been spread. It is what is being done to solve the tenement and housing problem; it is the school and factory inspection and hygiene; the prevention of industrial diseases; it is a pure milk and water supply, thereby eliminating typhoid and other acute infectious diseases; open air schools, boy scouts, health crusaders—it is all this, and not efforts directed solely to the tubercle bacillus or the tuberculous individual that is ridding the world of tuberculosis.

Diet Reduction with Retention of Protein to Relieve Glycosuria in Diabetes Mellitus.—The theories underlying the diet reduction method are outlined by Fenlon. By keeping the protein intake of the diet at a necessary level, the tendency to a development of acidosis is decreased as the patient does not have to burn his own body fats. Protein is needed to replace that lost by the wear and tear on the tissues during the metabolic changes of the body. Chittenden's standard of 0.12 gm. of nitrogen per kilogram of body weight is necessary to the body during a diet reduction. This amount of protein is increased in this method because of the altered metabolic changes in diabetes. With the protein intake maintained at a definite level the percentage of carbohydrate in the diet would be relatively decreased. Under preparatory treatment to fasting the protein and fat are both reduced, leaving the carbohydrates relatively high. The tolerance of the patient is more easily and quickly determined. There is less complaint of hunger on the part of the patient by this method of reducing diet. The protein in the diet, by maintaining the serum protein in the blood, possibly aids in the nutrition and functioning of the kidney during the diet reduction. Of fifteen patients treated according to this method, 100 per cent. were discharged sugar and ketone free.

Treatment of Chronic Ulcers.—After a preliminary washing of the ulcer with soapsuds, 1:2,000 mercuric chlorid and alcohol, as much dead material as possible is removed with forceps and the base of the ulcer is very gently curetted to remove slough and exudate. The ulcer is then cleaned again with alcohol and painted with a 50 per cent. tincture of iodin. The patient is then connected with the negative pole of the static machine, the positive pole being grounded, and the static breeze and sparks thoroughly applied to ulcer and surrounding areas. According to Stowell, this usually relieves all pain at the first treatment and can be so regulated as not to be unpleasant. The object of all this is to remove stasis and stimulate healing. A dry dressing or, occasionally, in the judgment of the operator, a boric ointment dressing is applied and then the leg is bandaged. This Stowell considers is a most important part of the treatment and he says it must be done correctly. The method is described in detail.

Bulletin of Johns Hopkins Hospital, Baltimore

January, 1920, **31**, No. 347

*Effect of Pyloric Obstruction in Relation to Gastric Tetany. W. G. MacCallum, J. Lintz, H. N. Vermilye, T. H. Leggett and E. Boas, Baltimore.—p. 1.
*Acute Cholecystitis in Children as a Complication of Typhoid Fever. M. R. Reid and J. C. Montgomery, Baltimore.—p. 7.
*Roentgen-Ray Studies of Seminal Vesicles and Vasa Deferentia after Urethroscopic Infection of Ejaculatory Ducts with Thorium; New Diagnostic Method. H. H. Young and C. A. Waters, Baltimore. —p. 12.
*Self-Eventration of Large Abdominal Hygroma through Scalpel Prick of Peritoneum. W. S. Halsted, Baltimore.—p. 13.
*Upturned Edge of Liver Acutely Distended Empyematous Gallbladders. W. S. Halsted, Baltimore.—p. 14.
*Fate of Bacteria Introduced into Upper Air Passages. A. L. Bloomfield, Baltimore.—p. 14.
*Case of Nonparasitic Hematochyluria. H. H. Hampton, Baltimore. —p. 20.
*Myoma of Uterus Showing Unusual Degenerative Changes. L. Brady, Baltimore.—p. 24.

Pyloric Obstruction and Gastric Tetany.—The authors point out that when the pylorus is obstructed and the gastric juice with its hydrochloric acid is constantly removed, there ensues a decrease in the chlorin of the plasma. There is a consequent increase in the alkali reserve which becomes extreme. The electrical excitability of the nerves is, in general, heightened and there are spontaneous twitchings and in most cases violent convulsions which lead to death. All of this can be prevented by constantly furnishing a large supply of chlorids. The authors injected from 50 to 100 c.c. of a 2 M (117 gm. in a liter) sodium chlorid solution intravenously. It is less easy to cure the condition by the administration of chlorids. The convulsive movements are not exactly like the twitchings of the tetany of parathyroidectomy in which they found no heightened alkali reserve, but they can be produced by the injection of sodium carbonate or bicarbonate. Since these convulsions can be stopped or prevented by sodium chlorid, it remains a problem as to what becomes of the excessive base sodium and as to the specific need of the chlorin ion. Further experiments are contemplated to settle these points.

Acute Cholecystitis Complicating Typhoid.—Reid and Montgomery report a case of a large typhoidal empyema of the gallbladder in a girl, aged 8 years, and review eighteen cases of typhoid fever in persons less than 15 years of age who either died from or who were operated on for complications arising in the gallbladder. The authors believe that the low operative mortality (only one of these patients died) justifies operation when there is grave doubt as to the nature of the condition of the gallbladder. Acute typhoidal suppurative cholecystitis should receive immediate surgical treatment, for in such cases rupture of the gallbladder may occur and thus lessen many times the chances of recovery. The best treatment is said to be cholecystectomy.

Roentgen-Ray Studies of Seminal Vesicles and Vasa Deferentia.—Young and Waters believe that they have demonstrated that catheterization of the ejaculatory ducts and radiographic study of the canal system above may be carried out with ease, and that it furnishes a ready and satisfactory method of determining the condition of these structures. The process is apparently without danger. In about fifty cases in which the instruments and thorium solution have been introduced for varying distances into the vasa deferentia and seminal vesicles, they have never encountered an epididymitis or any other deleterious sequels. The method is described in detail.

Self-Eventration of Large Abdominal Hygroma.—A child, 2 years old, was brought to Halsted to be tapped for ascites. The child's abdomen presented the typical ascitic picture. In making a short incision in the midline, the peritoneum

was accidentally pricked. Immediately there protruded through the prickhole a vesicle hardly larger than a mustard seed. The little bladder, slowly increasing in size, soon covered the abdomen, and finally in saddlebag fashion fell over the child's flanks, a broad, flat isthmus of sac-contained fluid stretching across the now scaphoid belly from one great bag of water to the other, both of these resting on the bed sheets. The wall of this great cyst was of filmy thinness. The midline incision was then lengthened and a search made for the pedicle, about which several small cysts were found to be grouped. All of these seemed to have their origin in the great omentum—embryologically, in the posterior mesogastrium. An independent cyst, about as large as an orange, seemed to be contained between the layers of the duodenal mesentery, the continuation of the stomach's mesentery or posterior mesogastrium. This cyst was so adherent to the mesenteric vessels that Halsted feared its removal might imperil the circulation of the bowel; hence he stitched its wall to the parietal peritoneum, and in a few days opened and drained it. The child made a prompt recovery. Twenty-two years later, examination of the abdomen revealed nothing abnormal, except, perhaps, a little tenderness in the region of the appendix.

Upturned Edge of Liver in Gallbladder Infections.—Halsted regards this as a diagnostic sign of some value. He has never noted this upturned or everted edge in the absence of signs of infection of the gallbladder, but is not sure that it may not occur with hydrops vesicae. More than once this sign has enabled Halsted in a debatable case to make the correct diagnosis.

Fate of Bacteria in Upper Air Passages.—Bloomfield found that *B. coli* and *Staphylococcus albus* swabbed on the tongue or nasal septum usually disappeared within twenty-four hours. *B. coli* and *S. albus,* introduced into tonsil crypts could be recovered after somewhat longer intervals. In no case was a permanent carrier state set up. Inert particles disappeared at about the same rate of speed as the bacteria. The organisms probably disappear because they are mechanically removed more rapidly than they multiply. The disposal of *B. coli* and *S. albus* illustrates a mechanism radically different from that effective in removing *Sarcina lutea.*

Nonparasitic Hematochyluria.—Hampton reports a case of nonparasitic chyluria that has persisted over a period of nine years in a young woman whose health was below par. She had a mitral stenosis that had given symptoms at intervals for more than ten years. Her chief complaint had been general weakness wih frequent syncopal attacks. Just how much of her disability depended on one or other of these conditions, could not be determined. Apparently, her kidney function was unimpaired. There was no evidence of renal or pulmonary tuberculosis. The leak in the lymphatic system was located in the right kidney. On starvation or a fat-free diet, the urine became fat-free, blood cells and albumin persisting. Posture influences did not control the amount of lymph leakage. Increased water intake and urine output increased the "fat loss."

Myoma of Uterus with Degenerative Changes.—In Brady's case a large cystic mass extended out into the broad ligament, and arising from the posterior surface of the uterus and extending into the left side of the abdominal cavity there was a large myoma. The cyst was multilocular, heart shaped, had a bluish color and extended downward from the lower surface of the uterus. On the inner and lower side of the cyst, about 2 cm. from the external os of the uterus, there was in the vagina an opening about 2 mm. in diameter. A small probe was introduced into this opening and a definite canal dissected out. Brady says that such a canal is in exactly the correct location for one of the rather rare embryonic remains of Gaertner's duct. Cross sections of the duct showed a musculature resembling that found in an artery and no epithelial lining. The cyst was made up of several smaller cysts, each of which was filled with grumous material. In one of these smaller cysts was a well developed polyp. Sections from the cyst showed it was a myoma showing degenerative changes.

Journal of Laboratory and Clinical Medicine, St. Louis

January, 1920, **5**, No. 4

Relation of Common Bile Duct to Pancreatic Duct in Common Domestic and Laboratory Animals. F. C. Mann, J. P. Foster and S. D. Brimhall, Rochester, Minn.—p. 203.
A Second Model Illustrating Phases of Kidney Secretion. M. H. Fisher, Cincinnati.—p. 207.
*Report of Five Cases of Poisoning by Nicotin. W. D. McNally, Chicago.—p. 213.
*Ectopic Adenomyoma of Uterine Type. Report of Ten Cases. A. E. Mahle and W. C. MacCarty, Rochester, Minn.—p. 218.
Importance of Biologic Classifications in Epidemiology. L. C. Havens, Iowa City.—p. 229.
Icebox Fixation Method in Performance of Wassermann Reaction. R. G. Owen and F. A. Martin, Detroit.—p. 232.
Comparative Study of Wassermann Test and Hecht-Weinberg-Gradwohl Modification. A. J. Blaivas, Brooklyn.—p. 244.
Method for Preparing Bacteriologic Medium Containing Ascites Fluid. L. G. Grace, Cleveland.—p. 253.
*Early Diagnosis of Typhoid and Paratyphoid Infections. H. J. Goeckel, Plainfield, N. J.—p. 255.
Hexamethylenamin Interferes with Test for Indoxyl in Urine. H. J. Goeckel, Plainfield, N. J.—p. 257.
Device for Withdrawing Blood from Veins. C. L. Cummer, Cleveland.—p. 257.
Traumatic Hemolysis and Wassermann Reaction. G. M. Olson, Minneapolis.—p. 259.

Poisoning by Nicotin.—The five cases of poisoning reported by McNally have occurred from taking insecticides containing nicotin by mistake for whisky.

Ectopic Adenomyoma of Uterine Type.—The ten cases reported by Mahle and MacCarty were extra-uterine and extratubal tumors diagnosed at the time of operation as adenomyomas. These growths contained glandular portions resembling typical uterine mucosa, surrounded by a fibrous connective tissue, and smooth muscle stroma, the latter in varying amounts. The distribution of the tumors was as follows: umbilicus, 1; abdominal wall, 2; sigmoid, 1; groin, 2, and rectovaginal septum, 4. Clinically these tumors gave no consistent group of symptoms on which an accurate diagnosis could be made. Of the ten patients, six gave a history of symptoms directly referable to the tumor.

Early Diagnosis of Typhoid and Paratyphoid Infections.—Goeckel claims that it is possible to obtain and identify typhoid and paratyphoid bacilli in the urine by agglutinins before the blood shows a positive Widal reaction or a typical cell count. By this means a prompter report may be given than if blood culture is resorted to. It is a more definite method of identification of the infection than is identifying agglutinins in the patient's blood serum. It is also more positive and eliminates reliance on the Widal reaction of blood serum. Goeckel suggests that it should be resorted to whenever possible in patients who may have a natural or acquired agglutinating capacity due to previous infection or through the use of vaccines.

Journal of Urology, Baltimore

October, 1919, **3**, No. 5

*Congenital Obstruction of Posterior Urethra. H. H. Young, W. A. Frontz and J. C. Baldwin, Baltimore.—p. 289.
Certain Relations Between Shell Fracture of Spine and Changes in Kidney and Bladder Function. H. W. Plaggemeyer, Detroit.—p. 367.
*Routine Examination of Bladder in Secondary Syphilis. E. L. Zimmermann and C. S. Levy, Baltimore.—p. 407.
*Effect of Prostate Feeding on Development of Tadpoles. D. I. Macht, Baltimore.—p. 411.
Toxicity of Pyelographic Mediums, Death Following Use of Thorium Nitrate. E. H. Weld, Rochester, Minn.—p. 415.

Congenital Obstruction of Posterior Urethra.—Twenty-four authenticated cases of congenital obstruction of the posterior urethra recorded in the literature are reviewed by Young and his associates, and twelve cases, admitted to the Johns Hopkins Hospital, are reported in detail. Three distinct types of congenital obstruction, all more or less valvular in construction, so placed that the concave surface of the valve is directed upward, thus bringing about an obstruction to the outflow of urine. In the great majority of cases, symptoms of the condition are manifest during infancy or early childhood. Symptoms of the condition are those arising from obstruction to the outflow of urine, together with the symptoms resulting from renal destruction, induced by back pressure and infection. The history of symptoms of urinary obstruction in male children in the authors' opinion should always suggest the possibility

of this condition. The presence of a distended bladder, and particularly of residual urine, is further indicative of obstruction. This possibility is further strengthened by obstruction in the posterior urethra to the passage of a catheter. Much information regarding the character and exact location of the valves and the renal damage resulting therefrom may be obtained by urethroscopy, the use of the roentgen ray, and renal function studies. The treatment of the condition is surgical, and consists of the removal of the obstruction. This may be accomplished in certain cases by the passage of a sound, with the forcible rupture of the valve; in certain other cases the obstruction may be removed by the urethrotome or by urethroscopic methods. Of the operative procedures, the selection of the suprapubic or perineal route will be governed by the personal preference of the operator. In infants and young children the suprapubic method has proved very satisfactory, the valvular obstruction being removed by its forcible rupture with a sound, its division with a rongeur, or its removal by scissors or cautery. In adults the condition is treated in most cases by intra-urethral methods.

Bladder in Secondary Syphilis.—Twenty-four male patients with active secondary syphilis were selected by Zimmermann and Levy for this investigation. Nine cases presented macular syphilides, twelve a papular eruption and in three the eruption was pustular. In eighteen there were lesions on the mucous membrane of the mouth and pharynx, or moist lesions about the anus or on the scrotum. In no case were urinary symptoms present, and examination of the urine was negative, except for a few shreds in the first glass in a few cases of chronic urethritis. No striking bladder changes were discovered. In ten cases slight vascular changes were noted in the region of the trigone in the form of a delicate ramifying network, and on the bladder wall itself as an increase in the caliber of the vessels. The vascular changes were not considered significant. None of these cases presented either papular or ulcerative lesions.

Effect of Feeding Prostate.—By feeding prostate gland to the larvae, the metabolism of the tadpoles was stimulated and their metamorphosis was hastened. In other words, the tadpoles developed legs earlier than normally and were soon transformed into frogs. At the same time the size of the tadpoles was not diminished and, indeed, in many cases the tadpoles also increased in size. This effect was produced by feeding the desiccated prostate of the ram of bulls and of human prostate. Macht believes that such a phenomenon speaks strongly in favor of an internal secretion of the prostate gland.

Medical Record, New York

Jan. 24, 1920, **97**, No. 4

*Empathic Index and Personality. A. A. Brill, New York.—p. 131.
Modern Treatment of Obesity by Faradic Electricity; Bergonie Method. E. C. Titus, New York.—p. 134.
Action of Electrical Currents on Ductless Glands and Other Tissues. F. DeKraft, New York.—p. 136.
Diagnosis of Abdominal Tumors. A. McGlannan, Baltimore.—p. 138.
Radium Treatment of Uterine Hemorrhage. T. C. and W. H. Kennedy, Indianapolis.—p. 141.
Inhalation Treatment in Pulmonary Tuberculosis. B. Robinson, New York.—p. 143.
*Administration of Arsphenamin by Retention Enema. J. L. Mandracchia, Brooklyn.—p. 144.

Empathic Index and Personality.—This term was coined by E. B. Titchener and deals with the idea of reading oneself into an animate or inanimate object. Brill regards this index as being a new and quick method of observing a person's mode of adjustment. He speaks of a racial, national and biologic empathic index and relates his experience in determining the index in different persons, on the basis of "Tell me your empathic index, and I will tell you who you are." For instance, Brill has found that a nickname given by classmates or friends usually shows the person's empathic index. The woman's empathic index always shows the type of man that appeals to her.

Administrations of Arsphenamin by Retention Enema.—Mandracchia describes a method by which arsphenamin is given in an enema. The solution of arsphenamin is prepared in the usual way, diluting it to between 200 and 250 c.c. The apparatus consists of a glass cylinder of a capacity of about 300 c.c., connected at one end with a rubber tubing having a glass window and a stopcock, and a rectal tube of sufficient caliber so that the fluid can flow easily and swiftly. The solution having been prepared and placed in the cylinder, and the air having been expelled, the patient, if a male, is allowed to assume the genupectoral position, and if a female, the lateral or Sims position. After the rectal tube has been introduced into the rectum for 4 or 5 inches, the solution is allowed to flow into the rectum by gravity after the stopcock in the rubber tube has been opened. As a rule, the average patient can hold this enema from twenty to twenty-four hours. In exceptional cases, it has been held for four days. Arsphenamin seems to have a constipating effect on the intestinal tract. Where a patient cannot retain the enema, it has been the custom to give a dose of the tincture of opium or paregoric by mouth. In children this is a standing rule. The enema having been given, the patients are sent to bed and allowed to remain in bed for about four hours, instructing them to change their position at frequent intervals. Reverse persistalsis can be more readily facilitated when the foot of the bed is elevated. In adults, the initial dose is 0.3 gm. and every dose thereafter is 0.6 gm. The enema can be given either once or twice a week, all depending on the condition of the patient. By giving the enema twice a week it is believed that the spirochetes are kept in a constant arsenic saturation and thus the duration of the infection is materially shortened. The ideal time to give these enemas is in the evening. During the course of arsphenamin enemas, the patient should undergo a course of active mercurial treatment. No sequels, such as headaches, nausea, vomiting, fever, dizziness, or subsequent nitroid crises acting destructively on the eyes, kidneys and liver, or a fatal termination have been observed by Mandracchia.

Nebraska State Medical Journal, Norfolk

January, 1920, **5**, No. 1

Symptomatology of Diaphragmatic Pleurisy. A. D. Dunn, Omaha.—p. 1.
Contaminated and Infected Wounds; Principles of Treatment with Antiseptics and Terminology. D. C. Hilton, Lincoln.—p. 5.
Organotherapy in Gynecology. I. C. Munger, Lincoln.—p. 12.
*Malignant Sarcoma. M. Emmert, Omaha.—p. 14.
Amaurotic Idiocy; Report of Cases. F. Clarke, Omaha.—p. 17.
Acriflavine in Gonorrhea. E. G. Davis, Omaha.—p. 19.
*Surgical Problems of Pancreas, Report of Cases. C. E. Roeder and A. L. Nielson, Omaha.—p. 23.

Malignant Sarcomas.—Emmert reports a case of tumor on the posterior surface of the right thigh midway between the trochanter and the popliteal space, about the size of a large orange in which a clinical diagnosis of sarcoma was made and operation advised. The tumor was removed. The pathologic diagnosis was simple fibroma with large connective tissue cells. Six weeks after leaving the hospital a streptococcus infection started in the scar and spread over the entire leg and thigh. This subsided in two weeks. One week later there developed rapidly on the median surface of the left ankle a tender inflammatory mass which was thought to result from the recent infection. This persisted for several weeks and then the inflammatory condition subsided, leaving a firm mass which was recognized as a sarcoma. The mass was removed five months after the first one. The pathologic diagnosis was fibromyxosarcoma, spindle and round cells. The second patient was only 2 months old. At the time of birth, a mass the size of a pigeon's egg was noticed on the thoracic wall. The mass was excised later. The microscopic diagnosis was fibromyxosarcoma.

Surgical Problems of Pancreas.—Roeder and Nielsen report three cases: congenital pancreatic cyst; infectious pancreatic cyst and acute pancreatitis.

New York Medical Journal

Jan. 24, 1920, **111**, No. 4

Results of Fracture of Femur Caused by Gunshot Wounds. A. Bowlby, London.—p. 133.
Uncorrected Factors Perpetuating Stomach Symptoms After Surgical Work. J. C. Wood, Cleveland.—p. 136.
Essentials of Success in Prostatic Surgery. J. H. Cunningham, Boston.—p. 138.

Eye in Pregnancy. L. C. Peter, Philadelphia.—p. 141.
Value of Inhalation of Certain Gases in Prevention of Influenza. B. Robinson, New York.—p. 142.
Roentgen Therapy in Gynecology. W. H. Meyer, New York.—p. 143.
Some Extragastric Causes of Gastric Symptoms. M. B. Kunstler, New York.—p. 144.
Clinical Analysis of Influenza Cases. A. S. Blumgarten, New York, and F. H. Voss, Gardner, N. J.—p. 146.

Jan. 31, 1920, **140**, No. 5

*Wassermann Contradictions Considered from Clinician's Point of View. A. L. Wolbarst, New York.—p. 177.
Extraction of Rifle Bullet from Bladder by Natural Route. G. Luys, Paris.—p. 181.
*Dental Syphilitic Chancre. H. Goodman, New York.—p. 183.
Coordination of Principles of Chemistry with Laws of Immunity in Treatment of Tuberculosis. B. S. Paschall, New York.—p. 184.
Psychology of Conscientious Objector. D. E. Hoag, New York.—p. 187.
Curing the Drug Addict. J. A. Hamilton, New York.—p. 192.
Compulsory Health Insurance. C. H. Chetwood, New York.—p. 193.
Shortening of Round Ligaments When Operating for Other Intrapelvic Conditions. S. Goldberg, Buffalo.—p. 197.

Wassermann Contradictions.—Wolbarst is of the opinion that the Wassermann test and the gonorrhea fixation test should be made by at least three serologists working independently; the serum should be taken simultaneously and sent to the different laboratories under identical conditions; one serologist is not to be depended on, however capable he may be. Three serologists will agree in approximately 53 per cent. of Wassermann tests and approximately 42 per cent. of gonorrhea fixation tests. That is, the chances are about fifty-three in a hundred that three serologist will agree on any given serum. They are more likely to agree in the negative cases than in the positive cases. At all events, it is well to devote more study to the clinical features of all cases and trust not quite so implicity on laboratory workers for a diagnosis.

Dental Syphilitic Chancre.—Goodman reports a case of syphilitic infection contracted at the site of tooth extraction.

Philippine Journal of Science, Manila

August, 1919, **15**, No. 2

Application of Generic Name Melodorum of Loureiro. E. D. Merrill, Manila.—p. 125.
Jumping Plant Lice of Paleotropics and South Pacific Islands. D. L. Crawford, Honolulu.—p. 139.
Genus Krisna (Jasside). C. F. Baker, Los Baños, P. I.—p. 209.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

January, 1920, **28**, No. 1

University of Oklahoma School of Medicine. L. Long, Oklahoma.—p. 2.
Chronic Progressive Cerebellar Tremor. G. M. Eckel, Hot Springs.—p. 4.
*New Method of Inserting Bone Graft for Correction of Kyphosis. S. A. Grantham, Joplin.—p. 8.
Fractures of Upper End of Humerus. M. E. Stout, Oklahoma City.—p. 10.
Postbellum Morbidity. J. A. Roddy, Oklahoma City.—p. 13.

New Method of Inserting Bone Graft for Correction of Kyphosis.—The method which Grantham proposes is to make a transverse incision, 1 inch long, just below the posterior spinous process of the affected vertebrae, extending through the supraspinous ligament. A thin osteotome, made with a reverse curve, is introduced as far as the base of the spinous process; the process is sheared in a direction parallel with the spinal canal; the two processes above the vertebra are cross sectioned in the same manner without the withdrawal of the instrument. The osteotome is then withdrawn and inserted in the opposite direction, and two spinous processes below the affected vertebra are cross sectioned, in a similar manner; a graft of sufficient length, from one-half to three-quarters inch in width, is secured; the capsular layer of periosteum is removed in such manner as to leave as much of the intervening osteogentic layer of cells as possible on the graft. The graft is now introduced into the tunnel thus prepared for its reception; if the skin incision requires a suture, it is placed subcuticularly, with catgut armed with two needles, so that the needles pass from within outward in passing through the skin. Grantham claims for his method that the graft is placed in direct bony contact, the endosteal surface to the stumps of the cross sectioned posterior processes, near the laminae; the periosteal surface, its fibrous capsule removed and as much as possible of the osteogentic layer of cells preserved, is pressed firmly by the freed ends of the processes, held in situ by the uncut lumbodorsal fascia, and supported literally by the muscles of the back.

United States Naval Medical Bulletin, Washington

January, 1920, **14**, No. 1

Comparative Anthropometric Study. L. S. Solhaug, M. C., U. S. Navy.—p. 1.
Medical and Hygienic Aspects of Submarine Service. E. W. Brown, M. C., U. S. Navy.—p. 8.
Queen's Hospital for Facial and Jaw Injuries, Frognal, Sidcup, Kent, England. L. W. Johnson, M. C., U. S. Navy.—p. 17.
Military Orthopedic Hospitals in the British Isles. R. Hammond, Providence, R. I.—p. 65.
Scuttle Butts on Board Ship. J. A. B. Sinclair, M. C., U. S. Navy.—p. 137.
Bronchopulmonary Spirochetosis in An American. G. W. Lewis, M. C., U. S. Navy.—p. 149.
Probable Case of Encephalitis Lethargica. A. F. Kuhlman, M. C., U. S. Navy.—p. 151.
Defense of Open-Air Treatment of Pneumonia. D. Ferguson, Jr., M. C., U. S. Navy.—p. 153.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Jan. 24, 1920, No. 3082

Clinical Research. J. MacKenzie.—p. 105.
*Early Diagnosis of Pulmonary Tuberculosis. T. Beattie.—p. 111.
*Routine Treatment of Malaria in Uganda. J. A. Taylor.—p. 113.
*Comparison of Two Methods of Administering Arsenobenzol Compounds in Syphilis. H. E. Gibson.—p. 14.

Early Diagnosis of Pulmonary Tuberculosis.—Besides placing dependence on the family history, previous history, as of pleurisy and hemoptysis, subjective symptoms, such as gradual loss of flesh or of constantly increasing languor, lassitude, tiredness, inaptitude for work, indigestion, dyspepsia, retching, anemia, slight evening pyrexia, feeling dull and tired in the evenings, objective signs, such as deficient expansion, impaired resonance on percussion, cogwheel respiration, posttussive crepitations, and the roentgen ray, Beattie attaches much importance to the tuberculin diagnostic test. He prefers to use Koch's T. A.; 1:1,000 dilution, 1 c.c. hypodermically.

Treatment of Malaria.—Most of the cases of malaria met with in Uganda, Taylor says, are of the simple subtertian form without complications. The routine treatment adopted by him in these cases was, calomel, in an average dose for an adult of not less than 5 grains, followed in some hours by a saline. Quinin hydrochlorid, 5 grains by mouth, one hour after the saline. This was usually about 7 a. m., and between this time and noon three more doses of 5 grains each were given at more or less regular intervals. On subsequent days, until the temperature had remained normal for twenty-four hours, 20 grains were given daily in the same manner, the first dose at 6 a. m., or as soon as the patient was awake, and the last dose at noon. After the temperature had been normal for twenty-four hours, the quinin was reduced to 15 grains daily—5 grains before the morning, midday and evening meals. This was continued for one week and then reduced to 10 grains daily—5 grains morning and evening. Ten grains daily were continued for a fortnight, and then only 5 grains were given each evening for two months. Acetphenetidin, in 5 grain doses, up to 15 grains daily, for headache alone, or acetylsalicylic acid in the same doses, if complaint were also made of pains in the limbs and body. Under this treatment the temperature usually remained normal after the third day, but occasionally, especially if a first attack, after four or five days; no complications occurred in any cases from the effects of the quinin or malaria; there were no recurrences of the fever during the three months' treatment, and attacks only occurred later when some definite fresh infection had taken place.

Administration of Arsenic Compounds in Syphilis.—The two courses of treatment given by Gibson were a concen-

trated course, which was completed in five or six weeks, and a "prolonged course," which lasted about eight weeks. Advantage seems to lie with the prolonged course, partly owing to the lesser incidence and violence of reactions, and partly because the total results are better than with the concentrated course; this especially applies to secondary cases.

Indian Journal of Medical Research, Calcutta

October, 1918, 6, No. 2

Area Sown as Measure of Bacterial Growth. W. F. Harvey.—p. 127.
*Yield by Weight of Bacterial Substance for Area Sown and Duration of Growth. W. F. Harvey.—p. 131.
*Dried Bacterial Antigen. W. F. Harvey.—p. 137.
*Report on Antiberiberi Vitamin Content of Ground Nut (Peanut) Meal Biscuits. E. D. W. Greig.—p. 143.
Preparation of Sterile Tryptic Extract from Pancreatic Glands of Herbivora. J. Cunningham.—p. 147.
Diagnosis of Acute Infections of Throat Occurring among Troops of Mesopotamian Expeditionary Force. H. W. Acton.—p. 152.
*Significance of Charcot-Leyden Crystals in Feces As Indication of Amebic Colitis. H. W. Acton.—p. 157.
Leishmania Tropica Infections in Mesopotamia. C. P. Connor.—p. 162.
*Culture Medium Suitable for Growth of Organism Used in Vaccines. D. Norris.—p. 174.
Twenty Years of Plague in India; Outbreak of 1917-18. F. N. White. —p. 190.

Yield of Bacterial Substance for Area Growth.—Harvey claims that yield of bacteria, as measured by surface growth, is a reasonably good approximation to moist bacterial weight and is very easily estimated. Weight of bacteria moist presents a considerable degree of direct relationship with weight dry. There is, however, a greater variability of weight moist for constant area of surface than there is of weight dry. The weight of bacteria in the dried condition would, therefore, appear to be the only satisfactorily accurate measure of quantity of bacterial antigen.

Dried Bacterial Antigen.—Not only can a dried antigen of bacterial substance be prepared easily, but it can be used with safety in animals by intravenous and intraperitoneal injection. Harvey found that such an antigen conserves its power of production of agglutinins for a long period. It is of extremely small bulk; is easily measured by weighing; and is capable of being dispensed in mixture with other similar antigens in any proportion desired.

Antiberiberi Vitamin Content of Peanut Meal Biscuits.—Greig's investigation shows that the ground nut (peanut) meal biscuit is as rich as the 15 per cent. atta biscuit in antiberiberi vitamins. Hence, the ground nut meal, whether in the form of bread or biscuit, would be suitable to form part of an "emergency" or other ration for issue to the troops.

Charcot-Leyden Crystals in Feces in Amebic Colitis.—After examining on an average about 500 stools a month, Acton has come to regard the presence of Charcot-Leyden crystals to be an almost certain indication of the existence of an amebic colitis and not to be associated with helminth infections. In the absence of amebas, he does not hesitate to diagnose the case as amebic dysentery when pus, mucus and Charcot-Leyden crystals are found, and the results obtained by treatment with emetin justified the conclusion.

Culture Medium Suitable for Growth of Organisms Used in Vaccines.—Various types of culture mediums were prepared and examined by Norris with a view to the determination of their nutritive value as regards the growth of *B. typhosus* for vaccine purposes. Of the various meat mediums at present in use, those prepared by means of a tryptic digestion appear to be much more nutritive than an ordinary beef peptone medium or than those prepared by acid hydrolysis. The addition of nutrose and casein appears to have no great influence on growth unless added to a particularly nonnutritive medium. The addition of a comparatively small amount of hydrolyzed nutrose to a poor medium increases the growing power to the level of an ordinary trypsinized medium. Glucose seemed to inhibit growth. Mediums obtained by the tryptic hydrolysis of nutrose, press cake from ground nut, and casein give material equal in nutritive value to that obtained from meat. In examining the nutritive value of these mediums, concentration of substrate appeared, within limits, to be of greater importance than time of hydrolysis.

Japan Medical World, Tokyo

Jan. 3, 1920, No. 315.

Antigen for Wassermann Test. R. Kobayashi.—p. 17.
Treatment of Cystitis in Women by Injection of Colloidal Silver. E. I. Kito.—p. 17.
Clinical Applications of Solidified Carbonic Acid. T. Sato.—p. 17.
*Wassermann Reaction of Aqueous Humor. G. Okazaki.—p. 17.

Wassermann Reaction of Aqueous Humor.—In the aqueous humor of the eyes of syphilitics, except when inflammation of the eye existed, Okazaki succeeded in demonstrating a Wassermann reaction in the proportion of 1:200 or even 1:600 part of the blood contents. In the presence of inflammatory diseases of the eye, the antibodies appeared in an even higher concentration. The Wassermann reaction in the aqueous humor occurs just as soon as it does in the circulating blood.

Dublin Journal of Medical Science

January, 1920, **3**, No. 577

*Pancreatic and Intestinal Infantilism. T. G. Moorhead.—p. 1.
The Criminal as a Patient. C. E. McQuade.—p. 11.

Pancreatic and Intestinal Infantilism.—In one case cited by Moorhead the apparently primary pathologic change was a catarrhal condition of the colon, and probably also of the small intestine, and, in consequence, the author regards the case as one of undoubted intestinal infantilism. Other changes present were probably secondary and resulted from the inanition produced by the bowel condition. The second case reported appears to be a further confirmation of Byron Bramwell's view, that pancreatic infantilism is a definite entity.

Journal of Laryngology, Rhinology and Otology, London

January, 1920, **35**, No. 1

Intratracheal Tumor Removal by Peroral Tracheoscopy. H. Tilley. —p. 1.
Vincent's Angina of External Auditory Meatus; Two Cases. A. Cheatle.—p. 6.
*Lupus of Upper Air Passage: Report on 128 Cases. R. Webber.—p. 7.
Sphenoidal Sinus Empyema in Cerebrospinal Meningitis. E. A. Peters. —p. 11.

Lupus of Upper Air Passages.—Webber believes that in the vast majority of cases of lupus, the condition first appears in the nose. This was the case in 113, or 88 per cent., of the 128 cases studied by him. The disease began either on the anterior part of the nasal septum, on the mucous membrane of the outer wall of the nose and close to its junction with the septum, or on the anterior end of the inferior turbinate. In a certain number of cases there was an extension of the disease to the mucosa of the hard and soft palate, the pharynx or larynx, without evidence of skin lesion, but in sixty-nine, or 52 per cent., of the cases, skin involvement was noted on the face. Glandular involvement occurred in forty-eight cases, the glands most frequently affected being those of the submaxillary chain. As worthy of note Webber calls attention to the fact that in twelve of these cases there were present scars following operations for old submaxillary gland trouble. He infers that at the time of such operation the disease within the nose causing the gland enlargement was present but overlooked. One of Webber's patients has been under treatment for his lupus for thirty-two years! In the treatment of lesions on the palate and alveolar process, the best results were obtained from curettage and the application of lactic acid (75 per cent. solution) or the electric cautery. For lupus of the nose, Pfannenstiel's treatment was distinctly helpful. This consists in curettage and packing the nasal cavities with gauze soaked in hydrogen peroxid, and sodium iodid internally. In lupus of the epiglottis and the laryngeal mucosa, removal of the diseased area with cutting forceps often has resulted in a cure, or, at least, arrest of the disease. The roentgen rays have been used largely in the past in the treatment of the associated skin condition, but at the present time they are used only in selected cases. Webber emphasizes that no matter what treatment is selected, only the closest cooperation between the patient and the person in charge of the case will produce the best results

Journal of Tropical Medicine and Hygiene, London

Jan. 15, 1920, **23**, No. 2

Etiology of Thrush. A. Castellani.—p. 17.
*Case of Appendicitis in Native of Solomon Islands. N. Crichlow. —p. 22.

Appendicitis in Solomon Islands.—According to Crichlow, appendicitis is a rare disease among the natives of the Solomon Islands. During five years' experience among these natives he has seen only one case. The case in question was a young missionary girl, who after being "Christianized" and "Europeanized" left off eating native foodstuffs and used to eat European foodstuffs. Crichlow says he cannot help feeling that the European foodstuffs and her life in civilization played some part in the development of her attack of appendicitis, as appendicitis is unknown among the natives living solely on native foodstuffs.

Medical Journal of Australia, Sydney

Jan. 10, 1920, **1**, No. 2

Value of Cystoscope as Means of Diagnosis in Urology. A. S. Roe. —p. 25.
*Isolation of Organism Resembling Paratyphoid Group. A. Dean. —p. 27.
*Case of Septicemic Anthrax Successfully Treated by Intravenous Serum Therapy. E. N. Bateman, N. H. Fairley.—p. 32.
*Case of Rupture of Liver, with Recovery. L. Doyle.—p. 32.

Isolation of Organism Resembling Paratyphoid Group.—From the urine and feces of five cases, no two of the same disease, Dean isolated an organism of the coli-typhoid group, which gave unusual biochemical reactions in the sugars. The organism was smaller than *B. typhosus,* being more of a coccobacillus in appearance. It varies from 1 to 2 microns in length. It stained easily with the usual anilin dyes, but was gram-negative. The organism does not ferment dulcite, lactose, inulin or adonite, while, on the other hand, it ferments saccharose, mannite, maltose, glucose, sorbite, raffinose and arabinose. Its gas producing powers are considerable, particularly on saccharose, glucose and sorbite. In arabinose and raffinose its action is changeable. New cultures give acid and slight gas formation. Some subcultures only give acid reaction. Its action on litmus milk differs widely from the usual nonlactose fermenters. For the first four days no change is noted, except that on the second day the alkalinity of the litmus milk is more exaggerated, the milk becoming intensely blue. On the fifth day, the milk assumes an acid reaction. This continues until the tenth day, when clotting of the milk occurs. On the fifteenth day, the milk clears, but still retains its acid reaction. In its agglutination reactions, this organism appears to be more closely linked to *B. paratyphosus* B, than *B. paratyphosus* A or *B. typhosus.*

Septicemic Anthrax Successfully Treated by Intravenous Serum Therapy.—In the case reported by Bateman and Fairley, anthrax bacilli were demonstrated in quantity in the seropurulent discharge from the excised pustule, and on the fifth day of the disease, blood culture yielded a positive result. The energetic administration of a large quantity of Sclavo's serum culminated within twenty-four hours in a critical fall of temperature, in a complete recovery from all toxic symptoms, and in a rapid amelioration of the local lesion itself.

Traumatic Rupture of Liver.—A boy, aged 8 years, sustained a rupture of the liver from being run over by an automobile. The outstanding features of the case were the thoracic type of breathing, the anxious expression of the child and the history of very severe trauma. Micturition occurred shortly afterward and perfectly normal urine was voided. A provisional diagnosis of a ruptured abdominal viscus was made by Doyle, and the evidence suggested that the lesion would be found in the spleen or the left lobe of the liver. The general appearance of the child was indicative of an injury much more serious than what was compatible with the physical signs, and it was felt that it would be safer to explore the abdomen immediately rather than to wait. Laparotomy was performed about two hours after admission. On opening the peritoneum, blood stained fluid was encountered, and on retracting the abdominal wall, blood gushed up in startling quantity and with great rapidity. The issue was traced to the right lobe of the liver. There was a laceration on the anterior surface, commencing on the free edge, about 2.5 cm. lateral to the gallbladder and running vertically for about 5 cm. A long strip of iodoform gauze was packed as tightly as possible into the wound, and the end was brought out of the incision. Four large abdominal packs were inserted between the liver and the diaphragm over the tear. Transfusion of physiologic sodium chlorid solution and of the father's blood was done. About seventy hours after operation, under light ether anesthesia, the packs were removed, drains were inserted and the wound was closed again. No further hemorrhage occurred. The lesson Doyle draws from this is that when there is a possibility of a solid abdominal viscus being damaged, it is generally safer to explore at once rather than to await the classical symptoms of hemorrhage.

South African Medical Record, Cape Town

Nov. 8, 1919, **17**, No. 21

*Syphilis in South Africa. A. Pijper.—p. 323.
Successful Treatment of Case of Sleeping Sickness. W. A. Murray. —p. 326.
Case of Urethral Hemorrhage. H. T. Mursell.—p. 328.

Syphilis in South Africa.—In order to determine the prevalence of syphilis among the population of South Africa, Pijper subjected the blood serum of fifty persons born in South Africa, and who apparently were healthy, to the Wassermann test. Five were found to have acquired syphilis at some period of their existence. In other words, according to these figures, 10 per cent. of people born in South Africa, while apparently healthy, are infected with syphilis. As none of these persons presented any symptoms, Pijper assumes that the disease was in the latent stage at the time of their examination. It is a well known fact that only about 50 per cent. of syphilitics will exhibit a positive Wassermann reaction, while in the latent stage. Consequently, 20 per cent. of the population of South Africa are infected with syphilis while seemingly enjoying good health. If the percentage of latent cases is 20 per cent. it may safely be assumed that the total percentage of persons infected with syphilis is somewhere between 20 and 25 per cent.

Archives des Mal. du Cœur, etc., Paris

September, 1919, **12**, No. 9

*Diagnosis of Different Forms of Slow Pulse. L. Bard.—p. 385.
*Phono-Phlebograms. J. de Meyer and V. Gallemaerts (Brussels). —p. 395.
*Digitalis in Tuberculosis with Low Blood Pressure. R. Burnand. —p. 419.

Diagnosis of Slow Pulse by Inspection of Veins.—Bard states that the diagnosis of the nature of bradysphygmia is usually made from the pulse tracings, but that this is possible merely from inspection of the jugular pulse wave. He explains how the characteristics of the pulse wave permit the false bradycardias from coupled rhythm of the ventricles to be distinguished from true ventricular bradycardia, and further distinguish between the three varieties of the latter. Thus in the majority of cases simple inspection of the venous pulse serves to differentiate the six different forms of slow pulse with regular rhythm.

Phonophlebogram.—De Meyer and Gallemaerts have continued their research published in 1914 on the graphic recording of the sounds that accompany the venous pulse, or at least those sounds which are perceptible on auscultation of the bulb of the jugular vein. They use the Einthoven apparatus as for cardiography, and record a whole series of complex sounds from the auricle and ventricle systoles and the duration of the silences.

Digitalis in Pulmonary Tuberculosis.—Burnand is medical director of the Sanatorium populaire at Leysin, and he here expatiates on the advantages of prolonged administration of digitalis in pulmonary tuberculosis with abnormally low blood pressure. He gives it irregularly, three days out of every ten, and has been convinced of the benefit therefrom in cases in which the myocardium still retains some of its vitality. In the advanced stages the heart is unable to respond.

Archives de Médecine des Enfants, Paris

January, 1920, **23**, No. 1

*Inherited Syphilis and Dystrophies. V. Hutinel and H. Stévenin. —p. 5.
Children's Asylums, etc., Should Be in the Country.—J. Camescasse. —p. 37.
*Present Status of Nephritis in Children. J. Comby.—p. 41.

Inherited Syphilis and Dystrophies.—Hutinel and Stévenin review the whole field of special and general dystrophies from inherited syphilis, and emphasize its predilection for the liver, spleen, brain and glands. Its effect on the endocrine glands may be responsible for the development of such opposite conditions as dwarfism and giantism, obesity and extreme leanness, severe rachitis, chronic rheumatism, etc. Treatment requires not only measures against syphilis but also the specific organotherapy for the endocrine gland involved. They discuss the anatomic lesions for which the inherited syphilis is responsible, commenting in particular on the constant abnormal changes in the bone marrow, lungs and heart. The latter is very rarely directly affected by the syphilis; it seems to pass by the larger blood vessels and heart in children, and act merely on the smaller vessels. They cite some cases of genital infantilism in which the development of the organs had not only been arrested but sclerosis had invaded them and crushed out the noble elements. In other cases the organs undergo actual retrogression; this is particularly likely in the pluriglandular cases, especially those in which pituitary or thyroid disturbances predominate. This clinical picture may be traced to other chronic infections and intoxications besides syphilis, but is more common with the latter, as the morbid process is more apt to act on several of these glands at once. This is not inevitable, however, as some of the glands may become pathologic only secondarily to the first ones involved.

Nephritis in Children.—Comby reproduces nearly the whole of Hill's article on this subject in the *American Journal of Diseases of Children*, April, 1919. Comby comments on it that it "mirrors his own experience and ideas." . . . "Dr. Hill," he adds, "has observed large numbers of cases and has observed them well. His descriptions bear the stamp of truth."

Bulletin Médical, Paris

Jan. 3, 1920, **34**, No. 1

Is Influenza an Autonomous Disease or an Epidemic of Pyosepticemia? M. Sacorrafos.—p. 5.
*Treatment of Acute Appendicitis. A. Gauchoix.—p. 7.

Treatment of Acute Appendicitis.—There has been considerable discussion lately of this subject in France, apparently going over the ground that the surgeons of America traversed and left behind them, twenty years ago.

Jan. 10, 1920, **34**, No. 2

*Medical Treatment of Acute Amebic Disease of the Liver. F. Françon. —p. 21.
*False Tuberculosis. A. Jacquemin and M. Dubreuil.—p. 23.

Medical Treatment of Acute Amebic Disease of the Liver.—Françon emphasizes that the differential diagnosis of acute amebic hepatitis may be puzzling when there is associated malaria or the clinical picture resembles typhoid, pleurisy, gastro-enteritis or cholecystitis. Instances of each have been published. Radioscopy is useful when the ameba cannot be detected in the stools, as happened in 15 of his 28 cases, and in 16 of Ravaut's 21. Medical treatment is necessary even when an operation is contemplated. In the 88 cases Françon has compiled, emetin was given in 72 cases; neo-arsphenamin in 2, and both in 12. He regards the combination as most promising. When exploratory puncture shows a young focus, with creamy, reddish pus, with well preserved leukocytes and no fatty degeneration, the focus can usually become resorbed under medical measures alone. But with dead pus and associated infection, resorption is practically impossible and the focus will have to be mechanically cleared out; secondary infection is not amenable to emetin treatment. Medical measures are liable to fail also if the abscess is larger than a mandarin orange. Recurrences can be treated with the medical measures anew. The results in the 88 cases he has compiled fully confirm the efficacy of emetin in amebic disease of any kind. It seems to be even more effectual when the focus is in the liver rather than in the bowel, as is easily explained by the fact that the encysted forms of the ameba seldom get into the liver, and superposed infection is the rule in the intestines.

False Tuberculosis.—Jacquemin and Dubreuil review their four years of sanatorium experiences in respect to false and factitious pulmonary tuberculosis. They warn of the danger of incriminating tuberculosis when the patient has merely a bronchitis of nasal origin or exhibits the lung phenomena of mitral stenosis or the respiratory disturbances common in certain forms of liver disease, or has interlobar pleurisy with a fistula into a bronchus. There may be frequently recurring or continuous bronchitis when the nose is more or less stopped up. "Beware," they say, "of mouth breathers; examine the nose before the chest." Stones in the gall-bladder may induce a pleural reaction, pains in the shoulder, tendency to hemorrhages, and occasional waves of fever and general depression that may be mistaken for pulmonary tuberculosis, especially when there is a cough. The liver cough may deceptively simulate a lung cough, and the right tracheobronchial glands may enlarge under the influence of the cholecystitis. The laboratory findings may be the only clue in such cases. An old interlobar pleurisy with a fistula into a bronchus is almost certain to be mistaken for pulmonary tuberculosis unless it is noticed that the fever occurs in the morning instead of the evening. Another sign is a tendency to hippocratic fingers. This, they declare, is always the expression of a pleural lesion. It is a synonym, they say, for interlobar pleurisy when it occurs early. With pulmonary tuberculosis it is exceptional and tardy.

As the demobilized men know that a sputum containing tubercle bacilli is like a government bond in insuring a certain income from the state, all kinds of tricks are practiced to impose the diagnosis of pulmonary tuberculosis. To avoid fraud, the man is examined on waking. He is given two or three swallows of tea, and is told to expectorate in the sterilized spit-cup given him for the purpose. His hands are carefully washed beforehand. This method averts fraud, but it is tedious and makes a number of examinations necessary. Among the tricks described is the effort to show a rapid loss of weight; the man at the first weighing artificially increases his weight.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 12, 1919, **43**, No. 36

*Edematous Rash from Neo-Arsphenamin. G. Milian.—p. 1055.
Epidemic of Probable Dengue in Troops in Near East. Pagnier and O. Couffon.—p. 1059.
*The Blood in Typhoid after Vaccination. P. Armand-Delille and others.—p. 1063.
*Senile Wrinkled Skin in Children. A. Souques.—p. 1074.
*Injection of Air for Radioscopy. P. Emile-Weil and Loiseleur. —p. 1077.
*Spirochetal Jaundice. Lortat-Jacob and Deglaire.—p. 1077.
Pott's Disease in Woman of Seventy. P. Merklen and H. Schaeffer. —p. 1079.
*Gas Gangrene in Typhoid. Weinberg and Françon.—p. 1084.

Rash with Edema and Desquamation After Arsphenamin.—The man in Milian's case developed the rash, with edema of the eyelids, etc., resembling that with Bright's disease, after he had been taking a long course of neo-arsphenamin. The urine was constantly normal, except for urobilinuria. Ramond has encountered a similar case, the scarlatiniform eruption developing after the sixth injection. The syphilis was of only a few weeks' standing. The edema in face, arms, and legs was extreme, but there was no fever and the general condition and appetite kept good. The man became transiently deaf in one ear, probably from extension of the edema to the eustachian tube. This edematous rash persisted for about two months, the pruritus keeping up to the last. Ramond remarks that this toxic eruption with edema is not so rare as might be imagined from the literature, but instances of it are not published as a rule.

Blood Findings in Typhoid and Paratyphoid After Vaccination.—The findings in 350 cases in soldiers and civilians

in the near East are given. They suggest that paratyphoid bacilli seem to acquire greater virulence in subjects vaccinated against typhoid. The authors comment that this seems to confirm the wisdom of polyvalent vaccination.

Gerodermia in Children.—Souques recalls another case of loose, flabby, corrugated, senile skin in a child. Variot says that he has also encountered two cases of the kind.

Roentgenography After Injection of Air.—Weil and Loiseleur comment on the double advantage from injection of air after an effusion is evacuated. It not only has a therapeutic action but aids materially in the diagnosis by rendering much more distinct the outlines of the pleura, peritoneum or joint involved in the process.

Spirochetal Jaundice.—The case was typical in the robust young man, but there was in addition intense diffuse pruritus throughout the three weeks of the disease, and the urine contained bile salts; there was also bradycardia—all testifying, Lortat-Jacob says, to retention of the products elaborated by the kidney cells.

Typhoid Gangrene.—The typhoid in the young man ran a rather severe course without intestinal complications. Two days after defervescence, symmetrical patches of gangrene developed on the thigh; they were arrested by a gas gangrene antiserum, but the patient died the third day. Weinberg and Françon remark that if the stools or blood had been examined for anaerobes, the antiserum could have been used earlier, and the patient might have been saved.

Paris Médical

Dec. 27, 1919, **9**, No. 52

*The Mental Stomach. Chavigny.—p. 497.
*Treatment of Scoliosis. Joland.—p. 499.
*Treatment of Deafmutism. G. de Parrel.—p. 504.
Diagnosis of Height of Lesion Causing Spinal Paraplegia. J. A. Barré.—p. 507.

Mental Dyspepsia.—Chavigny declares that we digest with our brains as well as with our stomachs. Gastric digestion is cerebral in large part, and cases of uncontrollable vomiting should be classed as mental dyspepsia, and be treated by psychiatrists after gastro-intestinal specialists have diagnosed the case. He remarks that psychiatrists will realize their finest successes in the *rééducation psychique de ces petits mentaux*. Most of the patients who seek the stomach specialists cherish special fads in regard to eating whole wheat bread or other special diet, or going barefoot, or they have other odd hobbies. It is remarkable, he exclaims, how persons in this category often do well on a diet that a normal person might have difficulty in digesting. He adds that the surgeon must beware of the operative adventures to which this class of patients often seek to entice him. The recent tragic death of Pozzi and of Guinard should warn to refuse to these *petits aliénés* with *troubles cénesthésiques* the operations for which they sometimes clamor. Soldiers with this "mental dyspepsia" should be given rapid mental retraining, with gymnastic exercises and military discipline. In one of the typical cases related, the relapse under emotional stress or extra responsibility confirmed the psychic element involved. The lack of any modification after a useless appendicectomy, and the practically normal gastric chemistry testified that the uncontrollable vomiting in the previously healthy officer of 33 was of this nervous dyspepsia type, but more psychic than anatomically nervous.

Abbott's Method of Treating Scoliosis.—Joland insists that Abbott's method for treatment of scoliosis is difficult and dangerous, and should not be attempted except by the few specialists who know the exact indications for it. "The general practitioner should realize that the great majority of scoliotics should not be abbotted."

Treatment of Deafmutism.—De Parrel emphasizes that much can be done by physicians and parents to prepare deafmutes for the training in special institutions when they reach the age of 6 or 7. The young child should be given the benefit of hygiene, and of physiologic and surgical measures as the case demands to enable him to profit to the full from the specialist training later. He declares, "absolute deafness is extremely rare, and if the vestiges of hearing are trained, this is an inestimable gain when specialist treatment is begun." Vision should also be trained to the utmost, as lip reading depends on the visual acuity. De Parrel stresses the importance likewise of preparing the child for *réceptivité pédagogique* so that it will be ready to learn. This is the mother's task, but the physician is the indispensable technical adviser in this, and he should be well posted on what to advise. De Parrel gives minute details of all these preliminary measures, especially those seeking to train in attention, in imitation, and in tactile perception.

Jan. 3, 1920, **10**, No. 1

*Recent Progress in Tuberculosis. P. Lereboullet and L. Petit.—p. 1.
*Menstrual Equivalents in the Tuberculous. C. Sabourin.—p. 11.
*Miliary Forms of Pulmonary Tuberculosis. A. Pissavy.—p. 19.
Influenza and Tuberculosis. R. Debré and P. Jacquet.—p. 24.
*Diagnosis of Pulmonary Tuberculosis. P. Ameuille.—p. 28.
*Sunlight as Factor in Sterilization of Tuberculous Sputum Expectorated on the Street. H. Tecon.—p. 33.

Tuberculosis in 1920.—Lereboullet and Petit say that the prophylaxis and hygiene rather than the medical aspect of tuberculosis engrossed attention during 1919. Among the few communications on the medical features were those on the detection of the falsely labeled tuberculous. Compulsory declaration of tuberculosis seems to have been postponed to the day when the declaration will ensure care and assistance for the tuberculous and his family. Until this can be realized, notification serves merely to pile up statistics. E. Sergent has recently presented evidence that even tubercle bacilli in the sputum do not necessarily prove that the lesions are in process of evolution, and also that the absence of tubercle bacilli is not unfailing testimony as to the nonactivity of the lesions. Radiography throws no light on the age and evolution of the lesions, but a low arterial pressure is the rule in progressing cases. A rise in temperature after muscular exercise does not necessarily mean tuberculosis, as unstable temperature may be observed under various other conditions, digestive, cardiac, etc. They agree with Sergent's dictum that there is no absolutely certain sign which tells whether the tuberculous process in a well appearing person is progressing or not. He may have had hemoptysis on one occasion or a disquieting pleurisy, but has been in apparent health since. Repeated examination, the fixity of the stethoscopic and radioscopic findings, the character of the physical signs, the attenuation of the myotonic reaction, the disappearance of the tenderness at the apex, the normal blood pressure, the intensity of the tuberculin reaction, stability of the temperature, and the repeatedly verified absence of tubercle bacilli from the sputum, form a bundle of proofs on which the diagnosis can be based. The whole secret lies in repeating the examinations and comparing the findings. About 25 per cent. of the tuberculous show roentgen shadows in the fissures between the lobes, but few physicians ever examine for these *localisations scissurales*, and yet they are an important factor in recurring pleurisy. The stethoscope reveals small and inconstant foci of dry rattling, or friction râles, which, associated with intercostal neuralgia and cough, aid in detecting these frequent and benign tuberculous lesions.

Roger demonstrated ten years ago that the absence of albumin from the sputum excluded tuberculosis. A positive albumin reaction is found in many other diseases, but Krongold has recently published evidence to the effect that the presence of peptone in the sputum is a reliable sign of tuberculosis, as the tubercle bacilli belong to the small group of micro-organisms which by their proteolytic ferments split albumin into albumoses and peptones. Jousset insists that tuberculosis, as we know it, is merely the nodular form of infection by the tubercle bacillus. The latter may induce a wide range of reactions and symptoms, and in both there is first an acute, curable, congestive stage, in which serotherapy is promising. (His method was described in these columns, Aug. 17, 1918, p. 605.) The most important work on artificial pneumothorax during 1919 is stated to be that by Morelli of Montevideo. (One of his recent communications was summarized here, July 19, 1919, p. 235.) He draws the balance sheet with a most favorable balance to the credit of the

procedure in appropriate cases. Lalesque's review of his thirty years of treatment of tuberculosis at a seashore sanatorium is said to be another instructive contribution. He emphasizes the importance of the moisture of the sea air in preventing congestion and hemoptysis.

Menstrual Equivalents in the Tuberculous.—Sabourin describes how the organism seeks to throw off the excess of endocrine secretions that accompany ovarian functioning and which have to be got rid of, unless fecundation occurs. They usually pass off in the menstrual hemorrhage, but in the tuberculous they are liable to make their influence felt first on the points of lesser resistance, inducing congestion and possibly hemorrhage. There may be fever, congestion of the lungs, with hemoptysis, epistaxis, bleeding from hemorrhoids, diarrhea, excessive secretion in nose or bronchi, or there may be menstrual vomiting of bile or transient congestion of the liver, or several of these combined.

The Miliary Form of Pulmonary Tuberculosis.—Pissavy explains why and how we must distinguish between the four forms of pulmonary tuberculosis, the miliary, the nodular, the pneumonic, and the bronchitic or emphysematous form.

Bacteriologic and Radiologic Tests in Pulmonary Tuberculosis.—Ameuille says that he writes this article to convert the few physicians still left who fail to realize the paramount importance of bacteriologic and radiologic examination in every case of disease of the air passages.

Sterilization by the Sun of Tubercle Bacilli in the Street.—Tecon reports research from Lausanne, Switzerland, the results of which demonstrate that sputa expectorated on the roadway under the usual conditions even when exposed to the sun in summer for from two to fifty-two hours, that is, during nine successive days, induced the development of tuberculosis when guinea-pigs were inoculated from them. All the inoculations gave positive results, in one instance after eleven days of insolation. When the sputa had been deposited on snow beaten down in the driveway, the inoculations were all negative except in one instance in which the insolation had been only for thirteen hours. The sterilizing action of the sunshine is thus practically negligible for clumps of sputum such as the tuberculous expectorate.

Presse Médicale, Paris

Jan. 10, 1920, **28**, No. 3

*Volvulus of Sigmoid Flexure. E. Forgue.—p. 21.
*Electric Accidents with House Electric Current. A. Zimmern.—p. 25.
*Protecting Coating for the Stomach. F. Ramond.—p. 27.

Volvulus of Sigmoid Flexure.—Forgue emphasizes that the onset is not so sudden with volvulus as with ileus of other cause, and the symptoms are not so violent from the first. There is no vomiting, at least at first, and it is not fecaloid, while urine excretion continues almost normal—all testifying to the low location of the obstacle. The twisted loop becomes distended with gases, and percussion elicits a metallic resonance. The segment of the colon involved, ballooned by the local meteorism, shows an asymmetrical protrusion of the abdomen without peristaltic movements, but these findings are soon masked by the general distention of the intestines. He insists on the tendency to recurrence; the volvulus returned in 10 per cent. of Kuhn's ninety-five cases, and in nearly 16 per cent. of Filipowicz' thirty-two cases. Resection of the twisted loop has given a high mortality, up to 40 per cent., and the technic is difficult. Hence Forgue concludes this comprehensive study with the advice to be content with palliative measures such as colopexy, simple exclusion of the loop by entero-anastomosis, or enterostomy when the obstruction creates a pressing danger.

Mishaps from Domestic Electric Currents.—Zimmern remarks that the lamentable accident which recently cost the life of a colleague has called attention anew to the dangers of electricity even with low-power currents. Electrocution has occurred with a current of only 110 volts or even less. Conditions in a bath are especially favorable for this, the wet hands and the water clinging to the surface of the body provide exceptionally favorable conditions for conduction of the current if an electric light, or electric heater, or bell handle, is touched. Jellinek, Lutaud and Fleury have reported cases of this kind, young women being found dead in the bathtub with the metal chain or bulb in their hand. He urges that electric appliances should not be allowed, in bath rooms, within reach of a person in the bathtub. Weiss has reported a case in which a woman was killed in her kitchen as she was holding an electric light in one wet hand and turning on the water faucet with the other. Another woman was killed as she was dusting with a wet cloth the current-distributing apparatus for the electric heating appliances. A man was given an almost fatal shock when he took hold of the chandelier while holding in the other hand an electric light suspended by a wire. Few realize the danger they incur in changing a bulb when the hands or the floor are wet. If there should be some defect in the insulation a serious accident might result. He adds that although he has never heard of an accident of the kind, beyond slight shocks, yet it is well to be warned of the danger, in operating rooms, from manipulating electric lights, cautery, etc., and touching at the same time the water faucet, especially if the floor or walls are moist. The danger from the electric current is for the heart, and the effect is more pronounced when there is an element of surprise. Sleep and general anesthesia attenuate the effect. Rabbits in general anesthesia survive a current that kills at once normal rabbits. Zimmern adds that a number of fatalities have been reported in Germany during the application of Kauffmann's method of treating neuroses, giving a sudden, sharp shock to the patient; he forgets his previous ailments when thus "torpedoed." No explanation could be found in many of the cases for the fatality.

Protecting Coating for the Stomach.—Ramond gives, instead of bismuth, gelose, made from agar and medicated at will, with or without a mixture of gelatin. It is taken like bismuth for the "gastric dressing," one large dose fasting, or half an hour before meals and before retiring. As the dissolved gelose attracts molds, he sometimes used pulverized gelose, 0.10 gm., or a mixture of the same with 0.40 gm. crushed gelatin. This is thrown into a cup of boiling water flavored with peppermint or anise. The boiling is continued for four or five minutes, occasionally agitating; then the fluid is filtered and it is drunk while still hot, before it can coagulate. Or 5 gm. gelose can be boiled gently in a liter of water for twenty or thirty minutes, then passed through fine gauze, and before it cools 200 gm. of some aromatic syrup are added. A tablespoonful of the resulting jelly is dissolved in a cup of very hot water. The patient must change his position to bring this fluid into contact with the inflamed parts of the stomach. This gastric dressing answers the purpose almost if not quite as well as bismuth, and sometimes surpasses it while it has none of the drawbacks of bismuth. Ramond prefers to combine the two, giving bismuth for ten days and then the gelose the rest of the month, or mixing one twelfth of bismuth with the gelose for continuous use.

Progrès Médical, Paris

Dec. 20, 1919, **34**, No. 51

*Injection of Oxygen to Aid Roentgenography. L. Mallet and H. Baud.—p. 507.
*Cancer of Uterine Cervix. Potherat.—p. 508.
Treatment of Scabies. L. Bory.—p. 509.

Oxygen as Aid in Roentgenography.—Mallet and Baud expatiate on the harmlessness of intraperitoneal insufflation of oxygen, and on the instructive roentgen findings when this is done. The oxygen is harmlessly resorbed in a day or two; acute peritonitis seems to be the only contraindication.

Cancer of Uterine Cervix.—Potherat remarks that cancer on the vaginal aspect of the cervix resembles an epithelioma of the skin in many respects, as the structure of the mucosa of the vagina is more like skin than the mucosa lining the uterus proper. When operative removal was out of the question, he has known of survivals for five, seven and fourteen years after excision of the cancerous tissues down to the hard zone, where the sharp curet was arrested, and then the lesion was cauterized vigorously with a large nummular thermocautery.

Schweizerische medizinische Wochenschrift, Basel

Jan. 1, 1920, **50**, No. 1

*Pulse Findings with "Volume Bolometry." H. Sahli.—p. 2.
*Operations for Goiter. G. Hotz.—p. 6.
Parallel Skin Tests with Human and Bovine Tuberculins. Bernheim-Karrer.—p. 10.
*Laws Regulating the Multiformity of Symptoms. De Montet.—p. 12.

Research on the Pulse.—Sahli has long insisted that determination of the blood pressure may be misleading unless it is accompanied by a knowledge of the volume of the pulse at the same time. This he estimates by what he calls volume bolometry, and he here describes with illustrations his simple apparatus for the purpose and the numerous instructive findings with it.

Goiter Operations.—Hotz applies on both sides Kocher's method of resecting one half of the thyroid, leaving behind only a small piece. Hotz resects at one sitting nearly the whole of both halves leaving only enough on each side for physiologic purposes. In his 400 operations of the kind, one young man died and necropsy revealed influenza. There was only one other death in the series; this was in a woman of 72, and necropsy disclosed degeneration of the heart. In three cases after-hemorrhage required opening of the wound. The only deficiency symptoms observed afterward were in a young pregnant woman, which subsided under parathyroid tablets, and one case of mild symptoms of hypothyroidism. The recurrent nerves were injured during the operation in 5 per cent. of the first 200 cases; it is not known whether the resulting paralysis has subsided or not, to date. The upper parathyroids are not molested with this technic, but the lower ones are endangered. Other technics sparing more of the gland expose to the danger of recurrence, especially in the quite young. Hotz' operation takes about an hour, but the patient leaves the hospital in about eleven days as the average. He operates under local anesthesia, ligating the four thyroid arteries. Over 12 per cent. of the subjects were only 16 or less. The goiter tissue removed in children averaged 103 gm. He aims to remove all of the thyroid that he can, including the whole of the isthmus. The rectus muscles are severed, and from 60 to 120 ligatures are applied, and sometimes up to half are left in the wound.

Multiformity of Symptoms in Response to Single Stimulus.—De Montet argues that the relations between the various organs and functions are much more extensive than has hitherto been appreciated. The multiformity of the symptoms from a uniform stimulation of the sole, for instance, is evidence of this, he says, as he shows by the findings in a young infant, and in 184 adults, seeking to deduce a general comprehensive law.

Gazzetta degli Ospedali e delle Cliniche, Milan

Nov. 23, 1919, **40**, No. 94

*Hemostatic Band in Surgery. U. Nobili.—p. 1019.

Hemostatic Band in Surgery.—Nobili explains the advantages of partly blocking the circulation in the limb or fingers before operating on phlegmons, etc. The aim is more to prevent infectious material being swept into the general circulation during the operation than to avert hemorrhage. In addition to this precaution, Nobili makes a circular incision in the cellular tissue, all in sound tissue, some distance above, in operating on a phlegmon. This cuts off the spread of infectious material by way of the lymphatics, while leaving the arteries intact.

Revista Clínica, Medellín, Colombia

November, 1919, **2**, No. 14

The Human Body in Art. Montoya y Florez.—p. 49.
*Permanent Slow Pulse. L. E. Arango.—p. 84.
*Cure of Skin Disease by Intercurrent Acute Infection. J. Restrepo A.—p. 86.
*Code of Ethics.—p. 90.

Slow Pulse.—The pulse of 36 and the physical signs in the young man whose case is described by Arango, suggested mitral insufficiency with stenosis of the aorta. Considerable improvement was observed under 1 gm. of sodium iodid daily, and sodium cacodylate, with small doses of diuretics and laxatives.

Cure of Dermatitis by Intercurrent Acute Infectious Disease.—Restrepo relates that the ulcerating lesions on the legs had persisted for over three years, rebellious to all measures, but they disappeared completely during an attack of erysipelas. The patient was a woman of 44, otherwise healthy. In a second case of chronic dermatitis of the leg in a young man, it subsided likewise during intercurrent measles.

Code of Ethics.—This is a code presented by the Bogotá Sociedad de Pediatría for consideration at the recent national medical congress. Its special points have been summarized in these columns when published elsewhere.

Revista Médica del Rosario

December, 1919, **9**, No. 5

*Angioneurotic Edema; Two Cases. D. Staffieri.—p. 293.
*Case of Erythromelalgia. A. Boden.—p. 299.
*Chronic Arsenic Poisoning from Drinking Water. C. Alvarez.—p. 311.

Angioneurotic Edema.—Staffieri summarizes the prevailing views in regard to Quincke's edema, in the statement that it is characterized by abnormally exaggerated excitability of certain nerves which have control of the secretion and circulation of lymph. This hyperexcitability is almost always constitutional, the result of "dysendocrinia" (defective functioning of the endocrine glands), with thyroid insufficiency predominating. This excitability is rendered manifest by influences of different kinds, including some which behave like antigens, inducing anaphylaxis. In the first of his two cases, one side of the throat was affected but there was no inflammation. The young man showed signs of thyroid insufficiency and hypogenitalism, and under thyroid treatment there has been no recurrence of the acute edema of the throat. Atropin and a saline purge relieved the immediate symptoms; it was the first and only attack to date. In the other case there had been fleeting edema at various points during seven years. In this latest attack the face alone was involved, and the edema was so extreme that the eyelids could not be closed. As usual, the edema subsided completely in a few days. The patient was a healthy married woman of 35 with two healthy children and negative Wassermann reaction, and there are no signs of derangement of any of the glands of internal secretion.

Erythromelalgia.—Boden describes what he says is the fourth case of Weir Mitchell's disease to be published in Argentina. His patient is a bachelor of 34 with regular habits, healthy until the development of the erythromelalgia fourteen years ago. Four years later symptoms of Raynaud's disease became superposed on the Weir Mitchell set of symptoms, and the man wandered from hospital to hospital in search of a cure or at least some relief. The left big toe had to be amputated about two years ago, and the wound took seven months to heal. Boden cites the three other cases of erythromelalgia in Argentina, and mentions some still unpublished cases and one reported from Santiago de Chile in 1914. The redness and neuralgic pains are not necessarily restricted to the foot. In Cassirer's compilation of 67 cases both feet were affected in 24, both hands in 2, both hands and feet in 17, one foot in 9, and one hand in 4. Auché has published a case in which there was congestion also in the eyes and testicles during the attacks. No acute or chronic infection or intoxication could be discovered to account for the disease in Boden's case, the patient being apparently free from acquired or inherited taint. The only pathologic finding was atony and ptosis of the colon, and great improvement was realized with treatment addressed to the intestines, repose and dieting. One case is on record in which Raynaud's disease subsided completely after resection of the entire colon, and this confirms the close connection between production of toxins in the sagging bowel and the vasomotor centers which regulate the circulation, especially the trophosecretory neurons and those regulating the peripheral circulation. If the intestinal disturbances do not yield to medical measures, colectomy should be considered. This would break up the sympathetic-medulla reflex arc and remove the source of the toxins, and it is now under consideration in this case. [In J. J. Ferro's 1919 inaugural thesis at the University of Lisbon, the recent international literature on

erythromelalgia is exhaustively cited. The thesis is reproduced in the *Medicina Contemporanea* **37**:380, 1919.]

Chronic Arsenic Poisoning from Drinking Water.—Alvarez publishes two further cases of what he calls Bell-Ville disease, as the first cases of this chronic intoxication from arsenic-containing water were observed at Bell-Ville in northern Argentina. The new cases were in men of 25 and 62 and after abandoning the use of water from a certain well, both recovered completely from the severe clinical picture they presented at first. In the young man the liver was predominantly affected, and ascites required tapping twenty-one times. In both the skin showed dark pigmentation, with scattered white and black dots.

Mitteilungen aus der Med. Fak. der Univ. zu Tokyo

Oct. 11, 1918, **20**, No. 3, German Edition

*Auricular Flutter. S. Yamada.—p. 308.
*Carbohydrates and the Sugar Content of the Blood. K. Sakaguchi. —p. 345.

Auricular Flutter.—Yamada gives eight double-page tracings of the heart action in a man of 40 with nephritis and auricular flutter. This flutter was up to 230 per minute, and was not influenced by any measures, and it never changed to fibrillation, not even under digitalis. The ventricle could not keep pace with the auricle, and the ratio altered under epinephrin to 3:1, and under atropin to 2:1.

Carbohydrates and the Sugar Content of the Blood.—Sakaguchi publishes here the first report of his research on the nature of diabetes. He has been investigating the influence on the sugar in the blood of the amount, kind and time of ingestion of food. It is evident, he says, that the sugar content of the blood fluctuates even in normal conditions. The range, fasting, in the healthy Japanese was found to be between 0.067 and 0.107 per cent.; the average was 0.088 per cent. There was always distinct hyperglycemia after ingestion of from 70 to 100 gm. of glucose. The hyperglycemia reached its heighest point in twenty or thirty minutes, and then subsided, with one or two recurring waves.

Berliner klinische Wochenschrift, Berlin

Oct. 20, 1919, **56**, No. 42

*Gonorrheal Arthritis. H. Klose.—p. 985.
Antitoxin or Normal Horse Serum? M. Klotz.—p. 987; Idem. K. Dorn.—p. 988.
Effect on Rigor Mortis of the Lack of Postmortal Acid Production in the Muscles. F. Oppenheim and L. Wacker.—p. 990.
*Preservation of Erythrocytes After Death. G. Strassmann.—p. 994.
*Damage of the Eye from Methyl Alcohol Poisoning. W. Bab.—p. 995.
*Microsporia and Its Causative Agent. W. Fischer.—p. 996.
Proposed Reforms in Medical Teaching. O. Lubarsch.—p. 998. Cont'n.

Gonorrheal Arthritis.—During the war period Klose noted a woful increase in gonorrhea. Before the war only 2 per cent. of gonorrheal infections presented gonorrheal arthritis, whereas at present Klose estimates the percentage at 10 per cent. There are several causes: personal indifference, forced and improper treatment of the primary infection, and weakened physical condition of patients due to the effects of war. Since 1909, arthrotomy has been carried out systematically in the Universitätsklinik, Frankfort-on-the-Main, in certain severe types of gonorrheal arthritis. Definite indications for operative intervention have been set up: In a gonorrheal articular effusion, arthrotomy is indicated if, after one puncture, there is a second effusion, accompanied by considerable stretching of the capsule, together with pain, and also when the condition of the joint indicates a beginning subluxation. In phlegmonous and mixed types, arthrotomy is performed: (1) early, in the course of the first few days of a severe phlegmon, if the patient is plainly losing ground on account of pain and loss of sleep; (2) in general gonorrheal infections that arise from a joint infection; (3) in severe primary infections, with genito-urinary complications, which render vigorous, conservative treatment of the joint infection more difficult; (4) in multiple joint infections that cannot all be treated at one time, after careful selection of the joint for the arthrotomy, and (5) as a routine measure, after three weeks, if during this time vigorous treatment has brought about no perceptible remission of the subjective symptoms; in which case a beginning contracture of the joint caused by an effusion into the flexor tendons should be watched for and guarded against. By means of roentgenoscopy any beginning shrinking of the capsule, atrophy of parts of the joint, or obliteration of joint outlines can be controlled. The beneficial effects of arthrotomy are due to the getting rid of the toxic tissue fluid, and the relief from pressure afforded the tissues. The pain subsides promptly, and the general condition begins to improve at once. The case is thus shortened by many months. Two or three weeks after the operation the medicomechanic treatment may begin. However, in 14 per cent. of the knee joint infections thus treated by arthrotomy, the injuries that the knee had already suffered, proved to be irreparable, and ankylosis was unavoidable.

Preservation of Erythrocytes After Death.—Contrary to the usual view that red blood corpuscles disintegrate within a few days, or at the latest within twenty to twenty-five days after death of the organism, Strassmann found through examination of a blood effusion from the thoracic cavity of a cadaver exhumed seven months after death, that unchanged, well preserved red corpuscles were still present, whereas of the white corpuscles only lymphocytes were to be seen, and these were somewhat changed in appearance. It appears, then, that the white corpuscles do not resist decay as well as the erythrocytes.

Loss of Vision from Methyl Alcohol Poisoning.—In view of the increasing number of cases of methyl alcohol poisoning, Bab recommends that, in case it does not seem feasible to prohibit the manufacture of wood alcohol, it might be given a disagreeable taste by the addition of small quantities of some harmless substance. This would perhaps be the best way to lessen the danger of its continued use as a beverage. He describes four cases demonstrating the pronounced degenerative processes from the action of the methyl alcohol.

Microsporia and Its Causative Agent.—Fischer describes an epidemic of microsporia in Berlin children. It affected mainly schools, orphan asylums, and public institutions. The causative agent in similar epidemics in the past had been *Microsporon audouini*, but in the present epidemic it seemed to be *Microsporon depauperatum*, a representative of the human type of the microsporon group that had been hitherto unknown in Germany. The clinical aspects of the disease were somewhat different from the usual picture of microsporia in man, in that the inflammation was more pronounced. An abscess developed in four of the 200 cases.

Deutsche medizinische Wochenschrift, Berlin

Oct. 30, 1919, **45**, No. 44

*Acute Puerperal Inversion of the Uterus. R. T. von Jaschke.—p. 1209.
*Atypical Erythema Nodosum. G. Denecke.—p. 1211.
Vacuolation in Leukocytes. H. Meyer-Estorf.—p. 1213.
*Treatment of Old Ulcerating Wounds. Dürig.—p. 1215.
A Peculiar Epidemic of Meningitis. Paetsch.—p. 1217.
*Effect of Epinephrin on Blood Pressure. J. Bauer.—p. 1217; Reply. K. Dresel.—p. 1218.
Prophylactic Injections of Friedmann's Tuberculosis Remedy. Brünecke.—p. 1218.
Glycerin as Vehicle for Certain Stains. Hollborn.—p. 1219.
Proposed Reforms in Medical Teaching. J. Schwalbe.—p. 1220. Cont'n.

Acute Puerperal Inversion of the Uterus.—Von Jaschke reiterates that although partial or complete inversion of the uterus is one of the most dangerous complications associated with childbirth, yet prompt and proper treatment materially lessens the danger. Although mismanagement is generally responsible, partial inversions might possibly be caused by traction or relaxation of circumscribed portions of the uterus wall and contraction of adjoining portions. He thinks that in England and America too much weight is attached to local relaxation and unequal contraction. Zangemeister found on examination of the literature that in 98 per cent. of the cases traction played a part. Traction occurs almost always through the medium of the placenta, part or all of which has remained in the uterus. Occasionally, however, a submucous myoma may be a contributing factor. If relaxation of the uterine wall is pronounced, the placenta may exert traction by the force of its own weight, or a short cord may cause a partial inversion during expulsion of the

child. Inversion is favored without doubt by the fundal site and partial adherence of the placenta. Pressure on the relaxed uterus from above, as is applied in Credé's maneuver, produces the same effect as downward traction. No matter how the inversion may have been caused, therapy demands that puerperal inversion of the uterus be reduced at once. Von Jaschke admits, however, that Zangemeister and others oppose this view, maintaining that the shock of reduction, added to the shock caused by inversion, may prove serious. Even in the presence of severe hemorrhage, Zangemeister will not admit of immediate reposition, but endeavors to stop the hemorrhage by means of an elastic bandage fastened about the inverted organ. Von Jaschke cannot accept this teaching, and thinks that the bandaging causes a much greater shock than reduction under profound anesthesia. He regards the danger from infection as so great that its avoidance must be considered the main issue. However, if infection has already set in, he agrees with Zangemeister that the reduction of the inversion is contraindicated and that extirpation of the inverted organ, together with drainage of the Douglas pouch, must be done. But in fresh or recent cases infection is rare, and radical treatment should not be considered unless the inversion has existed at least six hours. He finds that profound anesthesia reduces to a minimum the shock manifestations sometimes occurring during reposition of the uterus. As a prophylactic measure or as a means of combating an already present shock, 2 c.c. of camphor and from 0.01 to 0.02 gm. of morphin will prove beneficial. The technic of the reposition is a delicate one. Brusk procedure is out of place. There should be no forcing of the organ through Bandl's ring, spasm of which can practically always be suppressed under profound anesthesia, aided by the effect of the morphin. Any remaining portions of the placenta may easily be, and should be, removed before the uterus is reverted. The manual technic follows: With the thumb, middle finger and index held in a cone shape, with the tips of the fingers he endeavors very gently to make an upward indentation at the lowest point of the inverted uterus. Sometimes it may be necessary to try another spot near by. When such a dent is produced, the pressure is slowly increased and the finger tips are gradually spread apart so as to cover a larger area. Care must be exercised, however, not to make the indentation broader than Bandl's ring. If this caution is not heeded, failure will result, and operators will be inclined to err and to ascribe their failure to a persistent spasm of Bandl's ring. However, after the indented portion has been carried past the cervical ring, the fingers may be spread out wider. The balance of the operation is usually easy. The still inverted portions are gradually drawn up by the upward rise of the fundus. If a high degree of atony persists, this will make reinversion more difficult. Pressure of the fingers must then be all the more even and steady. In such cases it will be found helpful, as soon as the reinverted portion has been brought up to Bandl's ring, to push gauze into the uterus, alongside of the operating hand. Then, as the reinversion proceeds, the gauze tampon is increased, which will check the hemorrhage, incite contraction and prevent a renewed spontaneous inversion of the uterus. Tamponade of the vagina with wide gauze, inserted in separate layers and tightly pressed together (the Kussmaul tamponade), will insure better results. Von Jaschke admits that there are a few cases in which it may be necessary to resort to instruments, but advises that the manual method be tried first.

Atypical Erythema Nodosum.—Within a few weeks of each other, five young women, whose ages ranged from 16 to 22, presented themselves at the University Clinic in Greifswald with similar skin lesions. Denecke states that on the front and outer side of the lower third of the legs there were red and reddish blue spots just above the ankle. The skin was smooth and shiny. A handbreadth area was swollen. Suction caused the redness to disappear and leave a pale ground. The spots were irregular, clearly circumscribed, and presented a mottled appearance. The skin was firmly attached to the substratum and felt hard. Finger pressure was slightly painful and left no indentation. In fact, it was difficult to make any impression on the skin. The skin when compressed into folds showed a very fine wrinkling. All five patients presented heart symptoms pointing to a pathologic condition of the endocardium, and all had rheumatic pains in the ankles and some in other joints. The differential diagnosis of the condition presented some difficulty. Denecke mentions half a dozen dermatoses that were considered and excluded before repeated palpation of the affected area led him to his final diagnosis of chronic, recurring erythema nodosum. The differentiation from erythema exudativum multiforme was not so difficult because the appearance of the dermatosis did not rapidly change from day to day; there were no outlying lesions, no patches with elevated edges, no tubercles, no blisters, no scales nor crusts. Sodium salicylate, 5 gm. daily, was the principal therapeutic agent. He comments on the coincidence of five cases, all in girls, and all localized in the same region, the area on the leg between the skirt and the shoe, which is most exposed to wind and weather, and the fact that all were in domestic service, obliged to be much on their feet.

Treatment of Old Ulcerating Wounds.—Wounds with extensive loss of tissue may refuse to heal, or, healing partially, they break down again and ulcerate. Dürig had found healing of such wounds difficult, and, after fruitless attempts to heal them, it became necessary to cover them with a transplant. The cause of the condition no doubt is that the central portions of the wound are not adequately supplied with blood. The scar tissue becomes more fibrous. The blood vessels grow smaller. The scar is deprived of fluid. It shrinks and is put on the stretch. The color changes from red to white, and finally in its center an ulcerous condition is set up. The indications are for an improvement in the blood supply. It occurred to Dürig that a procedure used years ago for the treatment of phagedenic ulcer would be helpful in treating ulcerating scar wounds, namely, lavage with a hot solution of potassium permanganate. Dürig uses for this purpose an irrigation apparatus at an elevation of 2 meters. The port wine red solution of potassium permanganate has a temperature of 40 C. The glass end-piece is fused, leaving only a pinhead opening, so that the wound may be sprayed with a fine, cutting stream. Two liters of the solution are needed for a ten minute lavage, which is done daily. After the lavage a dry dressing is applied. The viscous coating of the wound is often replaced in a few days by healthy granulations, and epithelization, beginning with the edge of the wound, soon covers the whole surface. Even though, because of the extent of the wound, a transplant should be necessary, Dürig finds this preliminary lavage treatment beneficial, as the wound is well cleansed and its size materially reduced.

Effect of Epinephrin on Blood Pressure.—Bauer has found that occasionally the subcutaneous administration of epinephrin in man causes a primary and not inconsiderable lowering of blood pressure that is not soon followed by a rise of pressure.

Münchener medizinische Wochenschrift, Munich

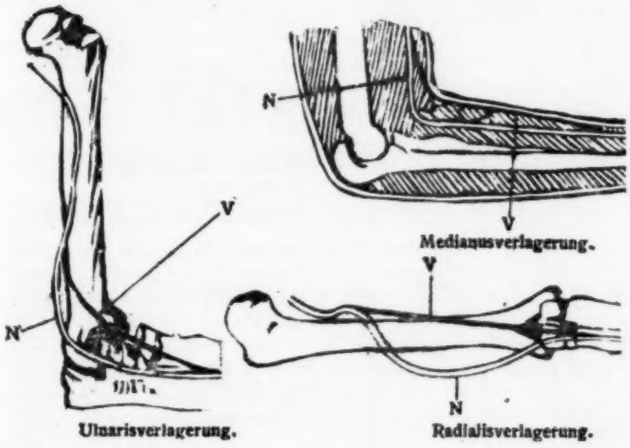
Oct. 31, 1919, **66**, No. 44

*Otogenous Pyemia and Sepsis. B. Heine.—p. 1251.
*Nerve Shifting and Joint Adjustment in Relation to Primary Nerve Suturing. M. Brandes and C. Meyer.—p. 1256.
Influence of Thermopenetration on Carcinomatous Tissue. A. Theilhaber.—p. 1260.
Relations Between Influenza and Tuberculosis. Kayser-Petersen.—p. 1261.
Treatment of Influenzal Empyema. Bettina Neuer.—p. 1264.
Mortality from Tuberculosis During the War. G. B. Gruber.—p. 1266.
Glaucoma in Relation to Exudative Diathesis. Rohr.—p. 1266.
Nitrobenzene Poisoning. Wandel.—p. 1267.
Therapy of Malignant Edema and Sepsis. W. Hancken.—p. 1268.

Otogenous Pyemia and Sepsis.—The pyemic and septic forms of otogenous infectious disease may sometimes be differentiated, although frequently, Heine states, they overlap. Remittent and intermittent fever (with or without chills) and metastases characterize the pyemic form. For the septic form, continuous fever, signs of poisoning (prostration, mental disturbance, delirium) and a stormy course are significant. In the septic form we may assume the

presence of increasing numbers of pyogenic bacteria in the blood (bacteremia) resulting in a poisoning of the organism by their toxins; or there may be a pure toxinemia. This toxinemia does not necessarily have its sole starting point in the original focus, as in diphtheria. Kümmel has shown that in other organs of the body (brain, kidneys) secondary bacterial foci may have formed, which maintain the supply of toxins. Heine admits that, exceptionally, this general infection may occur without involvement of the transverse or lateral sinus, but states that such cases are so rare that they may be safely left out of account, so far as indications for operative intervention are concerned. In one case he felt compelled to assume that the source of the pyemic fever was the suppuration in the mastoid process itself. He finds that most frequently the inflammatory process is conveyed to the sinus wall through contact with adjoining diseased bone. In some cases there is disintegration of bone tissue, and granulations form and shoot up along the sinus wall, resulting in an extradural abscess or suppuration around the sinus. He agrees with Haymann that mere inflammation of the sinus wall does not cause a thrombus in the sinus, and, with Lubarsch, that changes in the blood and retardation of the blood stream through the affected area are necessary accessory factors. The formation of a thrombus is gradual, and it arises ordinarily from a parietal coagulum. An obstructive thrombus is seldom formed at the start. Heine describes his mode of treatment in detail, but warns that every case must be considered on its own merits, and treated accordingly; for if one were to follow any single plan of treatment in all cases, more harm than good would often be done.

Nerve Shifting and Joint Adjustment in Relation to Primary Nerve Suturing.—The adjustment of joints so as to make a "cut-off" and save distance for nerve trunks, Brandes and Meyer remark, has been done for some time, but the shifting of the position of nerves (nervenverlagerung) in order to accomplish a similar purpose dates back to Wrede, who in 1916 published in the *Zentralblatt für Chirurgie* his article on "Nervenverlagerung zur Erzwingung einer direkten Nervennaht." The authors give an enthusiastic account of what Wrede has accomplished by his nerve shifting procedure. For example, in a 10.5 cm. defect of the median nerve the most that could be gained by adjustment of the elbow and wrist joints was 5 cm.; but, when the proximal nerve stump was removed from its bed in the pronator teres muscle and was embedded on this muscle and the bicipital fascia, as shown in the accompanying illustration, 5 cm. more were gained, so that the nerve could be sutured without any tension whatever. The authors, aroused by Wrede's success to make further research, have made extensive investigations on the cadaver and here publish their results. They have determined the maximal defects that various nerves may have and still permit the stumps to be brought together for primary suturing by means of joint adjustment and nerve shifting. They also give details as to how various joints should be adjusted in order to provide for shortening the course of different nerve trunks.



N, normal position of nerve; *V*, position of nerve after shifting.

Therapie der Gegenwart, Berlin

October, 1919, **60**, No. 10

*Dilatation of the Heart with Thyroid Insufficiency. H. Zondek.—p. 361.
*Artificial Esophagus. C. Hirschmann.—p. 368.
Sycosis. M. Michael.—p. 373.
Testing for Eyeglasses. Fehr.—p. 377. Cont'n.
Treatment of Intestinal Disease. G. Klemperer and L. Dühner.—p. 382.
Vaccine Therapy of Furunculosis. H. Schirokauer.—p. 397.
Treatment of Tuberculosis with Living Turtle Tubercle Bacilli. F. Baum.—p. 398.

Dilatation of the Heart with Thyroid Insufficiency.—Zondek warns that dilatation of the heart with hypothyroidism is of common occurrence, and it does not yield to digitalis. Neither the size of the heart nor the diuresis, nor the tendency to cyanosis, shows any modification under the usual heart tonics, but a prompt change for the better is apparent when the deficit in thyroid secretion is made up by thyroid treatment. All the subjective and objective pathologic findings retrogress, he says, and in two months the outline of the heart usually has returned to normal, even when the dilatation had been extreme. The heart disturbances with thyroid insufficiency are characterized by sluggish action and by the relative insignificance of the disturbances in comparison with the degree of dilatation. Electrocardiography serves as a useful guide when to suspend the treatment. When the high thyroid peak has dropped back to normal, the treatment can be resumed.

An Artificial Esophagus.—Hirschmann reports that the outcome in his three cases was so excellent that he does not hesitate to commend his technic for the systematic relief of absolutely impermeable stenosis of the esophagus. One young woman is in the best of health now, a year and a half after the operation. The various steps are illustrated. A short loop of the jejunum is moved to a bed under the skin of the chest, and one end is implanted in the stomach. Then the skin is incised to the right and left of the median line, these parallel incisions 6 or 7 cm. apart. The inner lips of the two incisions are turned back and sutured together, thus forming a skin-lined tunnel from throat to stomach. The stump of the esophagus is brought out through the skin in the neck, and sutured to the upper end of the skin-lined tunnel. Then the lower end of the latter is sutured to the short segment of the bowel loop that has been brought up to bridge the gap between the skin tunnel and the stomach. In all the steps of the operation he is careful to leave sufficient blood supply for all parts concerned.

Zentralblatt für Chirurgie, Leipzig

Jan. 3, 1920, **47**, No. 1

*Nearthrosis. A. Bier.—p. 2.
*Means to Facilitate Thyroidectomy. M. Claessen.—p. 9.
Extraperitoneal Laparotomy for Kidney Tumors. J. J. Stutzin.—p. 10.

Nearthrosis.—Bier tries to facilitate the formation of the new bursa in the new joint by injecting gelatin or sodium chlorid solution or inducing accumulation of serum in the joint cavity or leaving the extravasated blood. He gives case reports with each of these methods. None of the methods gives constantly good results, and infection is liable with each of them. In two cases the making of the new joint was followed by fatal infection; in one with an interposed flap of fascia, 250 c.c. of salt solution had been injected. The danger of infection is particularly great when the knee is flexed. He now fills the cavity after the resection with 5 per cent. tincture of iodin, and cleans it out again after a time and then sutures. He has thus treated fourteen joints, including twelve in which the ankylosis resulted from a suppurative process. The iodin induces an acute irritation which thus disinfects the cavity by the natural, biologic means. All healed by primary intention. The after-treatment is more difficult than the operation. He has found that the muscles may promptly recuperate function when they have long been useless on account of ankylosis. In one case the quadriceps rapidly recuperated after twenty years of

disuse from ankylosis due to a tuberculous process in the knee. The extensors are much more apt to atrophy than the flexors. He is convinced further that nervous and toxic influences may be responsible for the atrophy of muscles, more than any other factors. Active exercise is the best means to strengthen a weakened muscle. He only exceptionally applied force to mobilize a joint, but this is often very useful in correcting a nearthrosis that has developed ankylosis.

Thyroidectomy.—Claessen advises passing stout silk around behind the thyroid to lift it up with. He does not pass the silk through the thyroid tissue as this might entail hemorrhage. When these threads are to be left behind, as with partial thyroidectomy, he uses catgut instead of silk. Another use for these catgut encircling slings is to tie off and thus obliterate in time the remaining portion of the thyroid after partial removal. A series of catgut threads were thus tied around the stump, and it harmlessly shriveled up under them in one case described.

Zentralblatt für Gynäkologie, Leipzig

Jan. 3, 1920, **44**, No. 1

*Prophylaxis of Thrombosis. H. Fehling.—p. 1.
*Dangers of Transfusion in Obstetrics. E. Opitz.—p. 6.
*Obstetric Hemostasis. E. Sehrt.—p. 8; Idem. C. J. Gauss.—p. 10.
Treatment of Gonorrhea in the Female. H. Brauns.—p. 16.

Prophylaxis of Thrombosis.—Fehling declares that we are not so powerless as formerly supposed against thrombosis and embolism. Getting the patients up early after childbirth and operations is a great advance, and systematic exercising is also of great aid in prevention. Even more important is the systematic strengthening of the heart with tonics before and immediately afterward, and he cites figures showing the great improvement in his service since this has been done. He introduced this heart treatment in 1910. Before that he had had thrombosis in 5 per cent. and embolism in 1.25 per cent. in his myomectomy cases; 7.5 and 5.5 per cent., respectively, in his cancer cases, and 4 and 0.7 per cent. in his operations on the adnexa. The corresponding figures since 1910 have been 3.1 per cent. thrombosis and 0 embolism; 2.1 thrombosis and 1 embolism, and 1.4 per cent. thrombosis and 0.5 per cent. embolism. Other prophylactic measures are the bandaging of varicose veins before an operation. This prevents their becoming aggravated. Massage might aid in curing them, or compressed air massage, or obliteration of the varicose veins in the leg by injection of 1 or 2 c.c. of a 1 per cent. solution of mercuric chlorid with equal parts of a 1 per cent. sodium chlorid solution, injected into the vein, avoiding the most dilated portion and repeating as indicated. The patient can go about his business as usual, reclining only when there is a sensation of oppression. Zirn and Linser reported in 1919 that this procedure had been successfully applied in 800 cases without harm. Even with already developed ascending thrombosis, ligation of the vein and excision of the segment might be tried. Although embolism in the saphena is rare, yet this justifies the procedure. Haward has suggested intravenous injection of a 0.5 per cent. solution of citric acid to reduce the tendency to coagulation. Chantemesse for the same purpose has given 15 or 18 gm. citric acid in the course of two or three days before myomectomy. Fehling says that if this does not injure the stomach it seems promising. Riemann and Wolf recommend injection of 1 gm. herudin repeated in four hours, Kuhn injects sugar solution by the vein: experiments on rabbits seem to promise success with this. His formula is 4 gm. dextrose; 0.04 gm. sodium saccharate; 0.85 sodium chlorid and 100 c.c. distilled water, injecting 1 or 2 gm. by the vein. If there is already thrombosis before the laparotomy, or if the subject has previously had embolism, Fehling advises that some of these measures might be tried.

Dangers of Blood Transfusion in Obstetrics.—Opitz has had unfavorable experiences with reinfusion of the blood taken from the abdominal cavity after tubal abortion. In future he will simply leave the blood in the abdominal cavity unmolested. No harm from this was ever observed in the numerous cases in which this was done in Olshausen's service. The blood seemed to be always rapidly resorbed. The disturbances from autolysis of the blood are fewer and less than those with reinfusion of the blood after it has been cleared out. In two cases in which citrated blood from another person was transfused, serious disturbances followed, fatal in one instance. It was afterwards found that the donor's blood had a strong agglutinating action on the other blood.

To Shut Off the Blood from the Lower Half of the Body.—THE JOURNAL described at the time Momburg's method of hemostasis by constricting the body at the waist line, winding a rubber tube around the abdomen. Sehrt describes here a contrivance which accomplishes this in a more scientific manner by pressure on the abdominal aorta alone. The instrument is something like a pair of compasses. It encircles the abdomen, and a square jog in one branch fits down over the aorta and presses it back against the spine, flattening it out and closing the lumen. The compression is regulated and maintained with a thumbscrew, and it can thus be very gently and gradually applied and removed, and the resulting ischemia is complete. The device can be applied with the left hand and without moving the patient, the straight branch being easily slipped under the back. The instrument is light and takes up very little space in the physician's bag, and the testimony on all sides is said to be favorable.

Gauss endorses the advantages of a device of the kind, and states that the resulting ischemia has always caused strong contractions in the uterus in his clinical experience with an instrument he devised for the purpose some years ago, with a pad device. He adds that Sehrt's instrument is much lighter and simpler, and deserves the preference if it fulfils its promise. He even advises its prophylactic use when there is reason to anticipate too much hemorrhage, and he has successfully applied it in eleven cases as he describes. He queries whether it might not be applied as a routine measure to ward off the natural loss of blood at childbirth.

Zentralblatt für innere Medizin, Leipzig

Jan. 3, 1920, **41**, No. 1

*Vaccination Against Tuberculosis. A. Strubell.—p. 1.

Vaccination Against Tuberculosis.—Strubell says that Maragliano's experience with thousands of children whom he vaccinated against tuberculosis has proved the value of preventive vaccination, but his method of applying it by the Jenner scarification technic is behind the times, and exposes to the danger of secondary infection. Strubell is chief of the veterinary college, and he has been applying on a large scale a vaccine of his own preparation, for man and cattle, which he has patented.

Ugeskrift for Læger, Copenhagen

Jan. 15, 1920, **82**, No. 3

*Influenzal Empyema. Anna Sabroe.—p. 63.
*Case of Lethargic Encephalitis. G. R. Ulrich.—p. 71.

Empyema.—Sabroe relates that 94 cases of empyema as a sequel of influenza were treated at the public hospital, with 17 deaths, but the general infection rather than the empyema was responsible for all but 7 of the fatilities. Operative treatment was necessary in 90 of the cases, aspirating and draining, requiring from thirty to 169 days of hospital care, with an average of sixty-seven days. The influenzal empyema was capricious in its course, and required constant oversight, the temperature running up at times, but the general condition kept surprisingly good throughout as a rule.

Lethargic Encephalitis.—Ulrich calls attention to the stormy onset and brief course of the disease in the young man and the total lack of paresis of any kind. Total unconsciousness and convulsions seemed to be the only manifestations of the disease, and recovery was complete in less than two weeks with no memory of the twelve days of the sickness.